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PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

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NEWS 2 "Ask CAS" for self-help around the clock  
NEWS 3 FEB 27 New STN AnaVist pricing effective March 1, 2006  
NEWS 4 MAY 10 CA/CAPLUS enhanced with 1900-1906 U.S. patent records  
NEWS 5 MAY 11 KOREAPAT updates resume  
NEWS 6 MAY 19 Derwent World Patents Index to be reloaded and enhanced  
NEWS 7 MAY 30 IPC 8 Rolled-up Core codes added to CA/CAPLUS and  
USPATFULL/USPAT2  
NEWS 8 MAY 30 The F-Term thesaurus is now available in CA/CAPLUS  
NEWS 9 JUN 02 The first reclassification of IPC codes now complete in  
INPADOC  
NEWS 10 JUN 26 TULSA/TULSA2 reloaded and enhanced with new search and  
and display fields  
NEWS 11 JUN 28 Price changes in full-text patent databases EPFULL and PCTFULL  
NEWS 12 JUL 11 CHEMSAFE reloaded and enhanced  
NEWS 13 JUL 14 FSTA enhanced with Japanese patents  
NEWS 14 JUL 19 Coverage of Research Disclosure reinstated in DWPI  
NEWS 15 AUG 09 INSPEC enhanced with 1898-1968 archive  
NEWS 16 AUG 28 ADISCTI Reloaded and Enhanced  
NEWS 17 AUG 30 CA(SM)/CAPLUS(SM) Austrian patent law changes  
NEWS 18 SEP 11 CA/CAPLUS enhanced with more pre-1907 records  
  
NEWS EXPRESS JUNE 30 CURRENT WINDOWS VERSION IS V8.01b, CURRENT  
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 26 JUNE 2006.  
  
NEWS HOURS STN Operating Hours Plus Help Desk Availability  
NEWS LOGIN Welcome Banner and News Items  
NEWS IPC8 For general information regarding STN implementation of IPC 8  
NEWS X25 X.25 communication option no longer available

Enter NEWS followed by the item number or name to see news on that  
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\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 07:58:44 ON 21 SEP 2006

=> fil reg

COST IN U.S. DOLLARS

SINCE FILE  
ENTRY

TOTAL  
SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 07:58:52 ON 21 SEP 2006  
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DICTIONARY FILE UPDATES: 20 SEP 2006 HIGHEST RN 908067-83-4

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

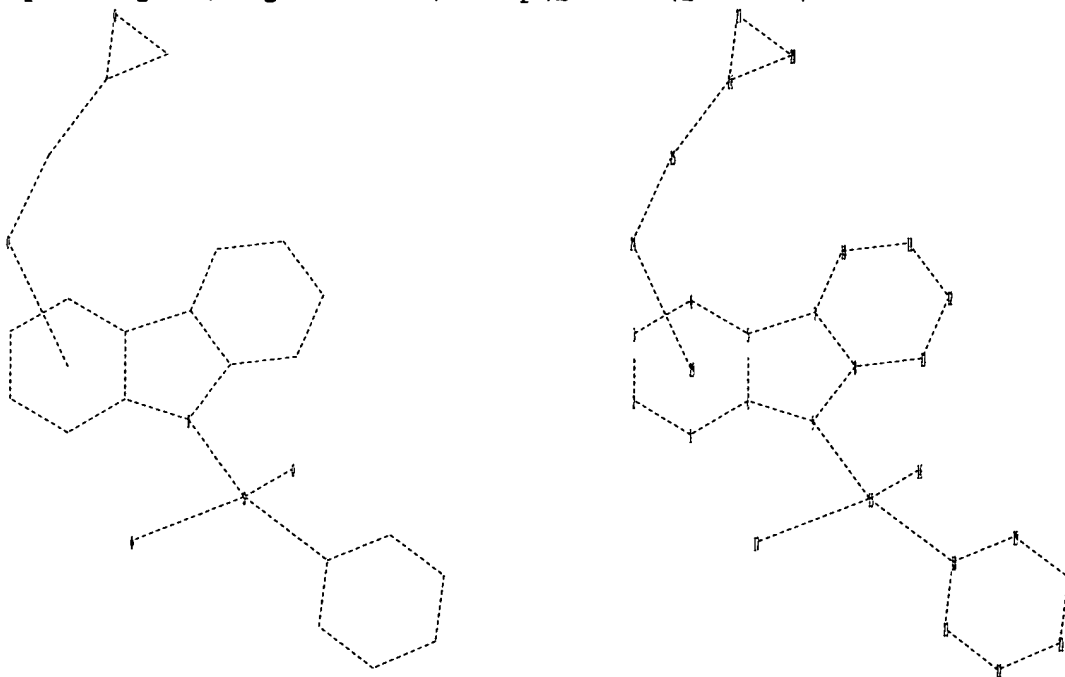
Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\QUERIES\10763296.str



chain nodes :

15 16 17 24 25

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 18 19 20 21 22 23 26 27 28

chain bonds :

9-15 15-16 15-17 15-18 24-25 25-26

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 10-11 11-12 12-13

18-19 18-23 19-20 20-21 21-22 22-23 26-27 26-28 27-28

exact/norm bonds :  
 1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 9-15 10-11 11-12  
 12-13 15-16 15-17 15-18 18-19 18-23 19-20 20-21 21-22 22-23 24-25 25-26  
 26-27 26-28 27-28  
 isolated ring systems :  
 containing 1 : 26 :

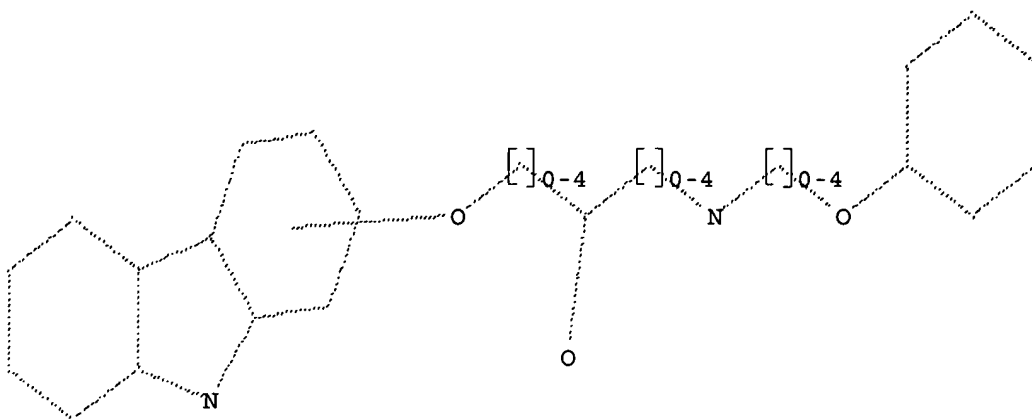
Match level :  
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
 11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:CLASS 18:Atom 19:Atom 20:Atom  
 21:Atom 22:Atom 23:Atom 24:CLASS 25:CLASS 26:Atom 27:Atom 28:Atom 29:CLASS

L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 07:59:23 FILE 'REGISTRY'  
 SAMPLE SCREEN SEARCH COMPLETED - 698 TO ITERATE

100.0% PROCESSED 698 ITERATIONS 6 ANSWERS  
 SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
 BATCH \*\*COMPLETE\*\*  
 PROJECTED ITERATIONS: 12375 TO 15545  
 PROJECTED ANSWERS: 6 TO 265

L2 6 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 07:59:27 FILE 'REGISTRY'  
 FULL SCREEN SEARCH COMPLETED - 13300 TO ITERATE

100.0% PROCESSED 13300 ITERATIONS 228 ANSWERS  
 SEARCH TIME: 00.00.01

L3 228 SEA SSS FUL L1

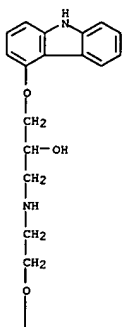
```
=> s l3 and caplus/lc
      52074487 CAPLUS/LC
L4      215 L3 AND CAPLUS/LC
```

```
=> s l3 not l4
L5      13 L3 NOT L4
```

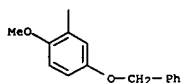
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=> d l5 1-13
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L5 ANSWER 1 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 887353-00-6 REGISTRY  
 ED Entered STN: 11 Jun 2006  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxy-5-(phenylmethoxy)phenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C31 H32 N2 O5  
 SR Chemical Library

PAGE 1-A



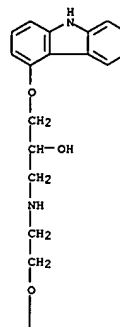
PAGE 2-A



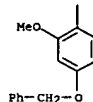
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 2 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 887352-95-6 REGISTRY  
 ED Entered STN: 11 Jun 2006  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxy-4-(phenylmethoxy)phenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C31 H32 N2 O5  
 SR Chemical Library

PAGE 1-A



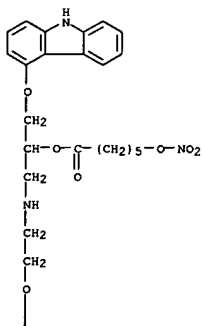
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 3 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 853992-39-9 REGISTRY  
 ED Entered STN: 07 Jul 2005  
 CN Hexanoic acid, 6-(nitrooxy)-, 2-(9H-carbazol-4-yloxy)-1-[[2-(2-methoxyphenoxy)ethyl]amino]methyl]ethyl ester (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C30 H35 N3 O8  
 CI COM  
 SR CA

PAGE 1-A



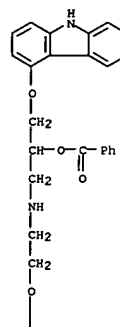
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 4 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 789439-82-3 REGISTRY  
 ED Entered STN: 26 Nov 2004  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, benzoate (ester) (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C31 H30 N2 O5  
 CI COM  
 SR CA

PAGE 1-A



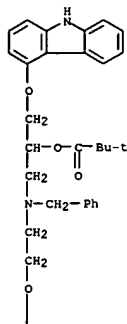
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 5 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 767236-95-3 REGISTRY  
 ED Entered STN: 22 Oct 2004  
 CN Propanoic acid, 2,2-dimethyl-, 2-(9H-carbazol-4-yloxy)-1-[[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]methyl]ethyl ester (9CI) (CA INDEX NAME)  
 MF C36 H40 N2 O5  
 CI COM  
 SR CA

PAGE 1-A



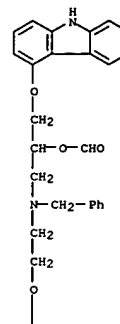
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 6 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 763876-40-0 REGISTRY  
 ED Entered STN: 15 Oct 2004  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]-, formate (ester) (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C32 H32 N2 O5  
 CI COM  
 SR CA

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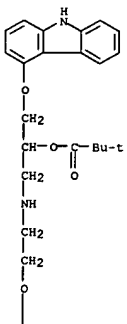
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 7 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 754135-65-4 REGISTRY  
 ED Entered STN: 29 Sep 2004  
 CN Propanoic acid, 2,2-dimethyl-, 2-(9H-carbazol-4-yloxy)-1-[[[2-(2-methoxyphenoxy)ethyl]amino]methyl]ethyl ester (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C29 H34 N2 O5  
 CI COM  
 SR CA

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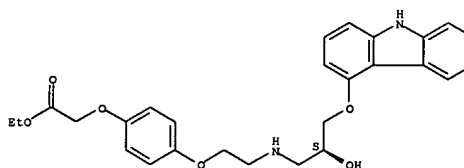
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 8 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 750553-84-5 REGISTRY  
 ED Entered STN: 24 Sep 2004  
 CN Acetic acid, [4-[2-[[[3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]ethoxy]phenoxy]-, ethyl ester, (S)- (9CI) (CA INDEX NAME)  
 FS STEREOSEARCH  
 MF C27 H30 N2 O6  
 CI COM  
 SR CA

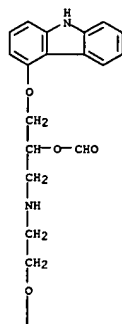
Absolute stereochemistry.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 9 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 748082-26-0 REGISTRY  
 ED Entered STN: 19 Sep 2004  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
 formate (ester) (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C25 H26 N2 O5  
 CI COM  
 SR CA

PAGE 1-A



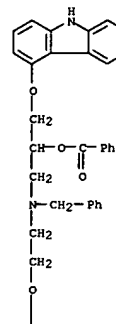
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 10 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 736881-10-0 REGISTRY  
 ED Entered STN: 01 Sep 2004  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylm  
 ethylamino)-, benzoate (ester) (9CI) (CA INDEX NAME)  
 MF C38 H36 N2 O5  
 CI COM  
 SR CA

PAGE 1-A



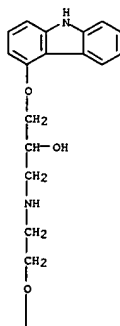
PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L5 ANSWER 11 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 216982-49-9 REGISTRY  
 ED Entered STN: 13 Jan 1999  
 CN 9H-Carbazolol,  
 4-[(2R)-2-hydroxy-3-[[2-(2-methoxyphenoxy)ethyl]amino]prop  
 oxy]- (9CI) (CA INDEX NAME)  
 MF C24 H26 N2 O5  
 CI IDS, COM  
 SR CA

PAGE 1-A



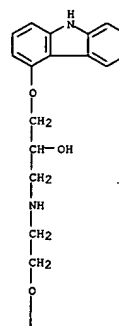
PAGE 2-A



D1-OH

L5 ANSWER 12 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 216982-20-6 REGISTRY  
 ED Entered STN: 13 Jan 1999  
 CN 9H-Carbazolol,  
 4-[(2S)-2-hydroxy-3-[[2-(2-methoxyphenoxy)ethyl]amino]prop  
 oxy]- (9CI) (CA INDEX NAME)  
 MF C24 H26 N2 O5  
 CI IDS, COM  
 SR CA

PAGE 1-A



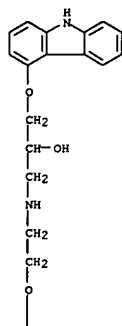
PAGE 2-A



D1-OH

L5 ANSWER 13 OF 13 REGISTRY COPYRIGHT 2006 ACS on STN  
RN 216982-15-9 REGISTRY  
ED Entered STN: 13 Jan 1999  
CN 9H-Carbazolol, 4-[[2-(2-methoxyphenoxy)ethyl]amino]propoxy]-  
(SCI) (CA INDEX NAME)  
DR 216982-23-9  
MF C24 H26 N2 O5  
CI IDS, COM  
SR CA

PAGE 1-A



PAGE 2-A



D1-OH



=> fil caplus  
COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
196.40	196.61

FULL ESTIMATED COST

FILE 'CAPLUS' ENTERED AT 07:59:45 ON 21 SEP 2006  
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=> d his

(FILE 'HOME' ENTERED AT 07:58:44 ON 21 SEP 2006)

FILE 'REGISTRY' ENTERED AT 07:58:52 ON 21 SEP 2006

L1 STRUCTURE UPLOADED  
L2 6 S L1  
L3 228 S L1 FULL  
L4 215 S L3 AND CAPLUS/LC  
L5 13 S L3 NOT L4

FILE 'CAPLUS' ENTERED AT 07:59:45 ON 21 SEP 2006

=> s l4  
L6 1346 L4

=> fil reg  
COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.46	197.07

FULL ESTIMATED COST

FILE 'REGISTRY' ENTERED AT 07:59:52 ON 21 SEP 2006  
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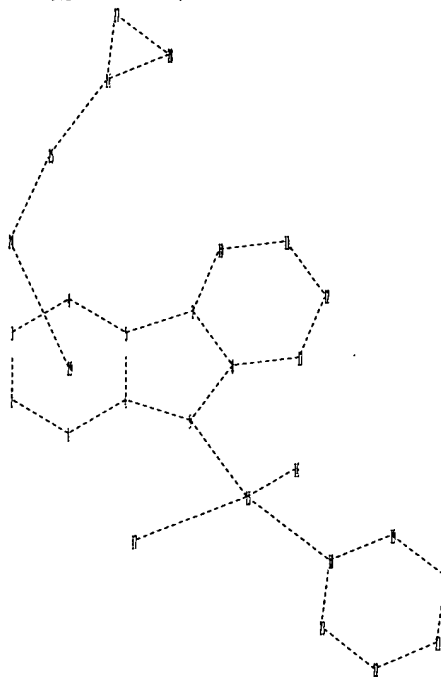
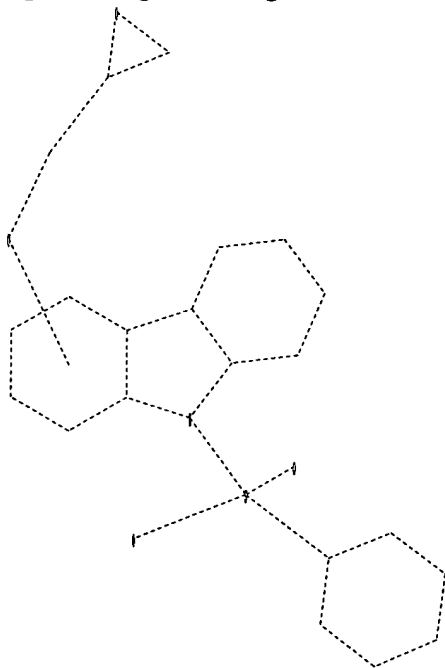
Please note that search-term pricing does apply when conducting SmartSELECT searches.

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<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\QUERIES\10763296.str



chain nodes :

15 16 17 24 25

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 18 19 20 21 22 23 26 27 28

chain bonds :

9-15 15-16 15-17 15-18 24-25 25-26

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 10-11 11-12 12-13  
18-19 18-23 19-20 20-21 21-22 22-23 26-27 26-28 27-28

exact/norm bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 9-15 10-11 11-12  
12-13 15-16 15-17 15-18 18-19 18-23 19-20 20-21 21-22 22-23 24-25 25-26  
26-27 26-28 27-28

isolated ring systems :  
containing 1 : 26 :

Match level :

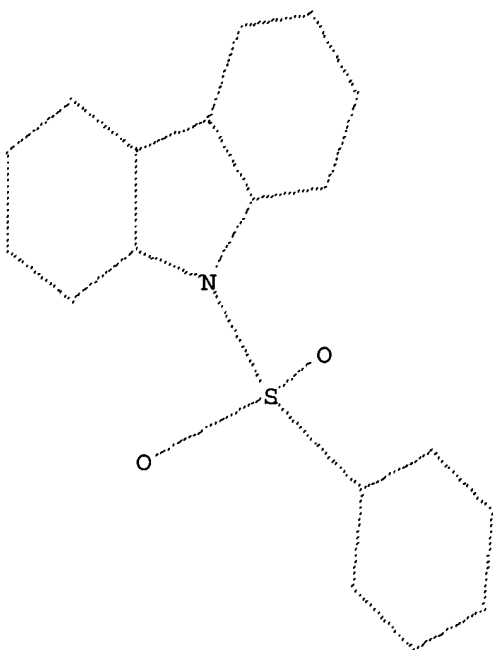
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11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:CLASS 18:Atom 19:Atom 20:Atom  
21:Atom 22:Atom 23:Atom 24:CLASS 25:CLASS 26:Atom 27:Atom 28:Atom 29:CLASS

L7 STRUCTURE UPLOADED

=> d

L7 HAS NO ANSWERS

L7 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 17

SAMPLE SEARCH INITIATED 08:01:08 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 1094 TO ITERATE

100.0% PROCESSED 1094 ITERATIONS  
SEARCH TIME: 00.00.01

30 ANSWERS

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 19896 TO 23864  
PROJECTED ANSWERS: 272 TO 928

L8 30 SEA SSS SAM L7

=> s l7 full

FULL SEARCH INITIATED 08:01:11 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 22673 TO ITERATE

100.0% PROCESSED 22673 ITERATIONS 541 ANSWERS  
SEARCH TIME: 00.00.01

L9 541 SEA SSS FUL L7

=> fil caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	167.38	364.45

FILE 'CAPLUS' ENTERED AT 08:01:14 ON 21 SEP 2006  
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FILE LAST UPDATED: 20 Sep 2006 (20060920/ED)

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=> d his

(FILE 'HOME' ENTERED AT 07:58:44 ON 21 SEP 2006)

FILE 'REGISTRY' ENTERED AT 07:58:52 ON 21 SEP 2006

L1 STRUCTURE UPLOADED  
L2 6 S L1  
L3 228 S L1 FULL  
L4 215 S L3 AND CAPLUS/LC  
L5 13 S L3 NOT L4

FILE 'CAPLUS' ENTERED AT 07:59:45 ON 21 SEP 2006

L6 1346 S L4

FILE 'REGISTRY' ENTERED AT 07:59:52 ON 21 SEP 2006

L7 STRUCTURE UPLOADED  
L8 30 S L7  
L9 541 S L7 FULL

FILE 'CAPLUS' ENTERED AT 08:01:14 ON 21 SEP 2006

=> s 19

L10            174 L9

=> s 16 and 110

L11            1 L6 AND L10

=> d ibib abs hitstr

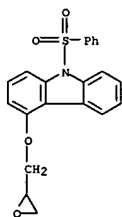
L11 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 2002:556143 CAPLUS  
 DOCUMENT NUMBER: 137:125080  
 TITLE: Process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temperatures and catalyst loading  
 INVENTOR(S): Scalone, Michelangelo; Zeibig, Thomas Albert  
 PATENT ASSIGNEE(S): Hoffmann-LaRoche Inc., Switz.  
 SOURCE: U.S. Pat. Appl. Publ., 19 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002099223	A1	20020725	US 2002-54462	20020122
US 6777559	B2	20040817		
CA 2434408	AA	20020801	CA 2002-2434408	20020122
WO 2002059089	A2	20020801	WO 2002-EP583	20020122
WO 2002059089	A3	20021031		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CH, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 EP 1355880 A2 20031029 EP 2002-716673 20020122  
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 JP 2004519465 T2 20040702 JP 2002-559391 20020122  
 US 2004127723 A1 20040701 US 2004-763296 20040122  
 EP 2001-101584 A 20010125  
 US 2002-54462 A3 20020122  
 WO 2002-EP583 W 20020122

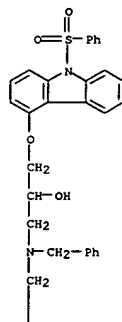
OTHER SOURCE(S): CASREACT 137:125080; MARPAT 137:125080  
 AB A process for the preparation heterocyclic indene analogs, especially with the preparation of 4-hydroxycarbazole or N-protected 4-hydroxycarbazole, involves cyclocarbonylation followed by saponification. This process avoids high temps. and high catalyst loadings.  
 IT 72955-94-3P 444105-38-8P 444105-40-2P  
 444105-41-3P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);  
 RACT (Reactant or reagent)  
 (intermediate; process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)  
 RN 72955-94-3 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]- (9CI) (CA INDEX NAME)

L11 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)



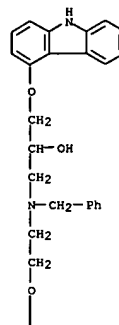
RN 444105-41-3 CAPLUS  
 CN 9H-Carbazole,  
 4-[2-hydroxy-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]propoxy]-9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



L11 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)

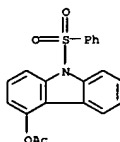
PAGE 1-A



PAGE 2-A



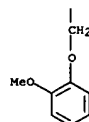
RN 444105-38-8 CAPLUS  
 CN 9H-Carbazol-4-ol, 9-(phenylsulfonyl)-, acetate (ester) (9CI) (CA INDEX NAME)



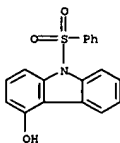
RN 444105-40-2 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)-9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)

L11 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)

PAGE 2-A

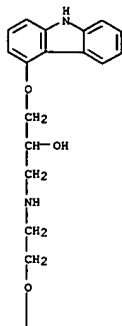


IT 72956-09-3P, Carvedilol  
 RL: IMF (Industrial manufacture); PREP (Preparation);  
 RACT (Reactant or reagent)  
 (preparation and deprotection; process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)  
 RN 444105-39-9 CAPLUS  
 CN 9H-Carbazol-4-ol, 9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)



IT 72956-09-3P, Carvedilol  
 RL: IMF (Industrial manufacture); PREP (Preparation);  
 (process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)  
 RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS  
FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

=> fil reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

6.49

370.94

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

-0.75

-0.75

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DICTIONARY FILE UPDATES: 20 SEP 2006 HIGHEST RN 908067-83-4

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

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conducting SmartSELECT searches.

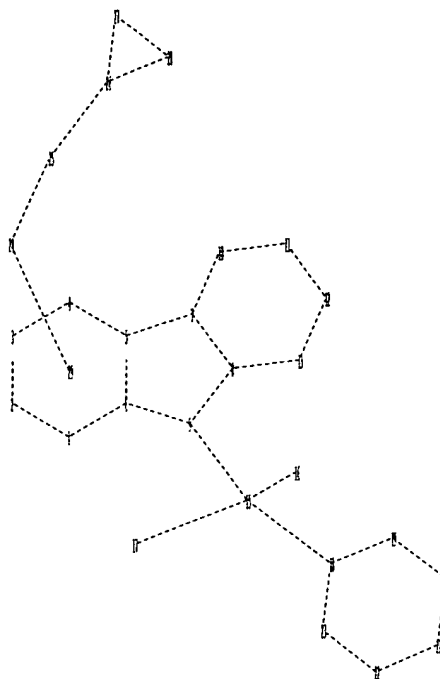
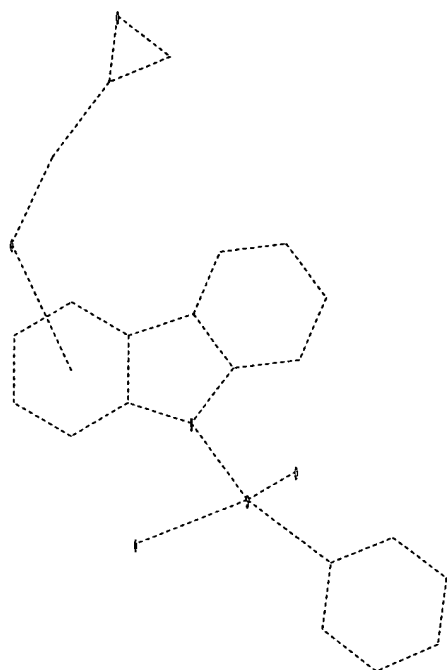
REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\QUERIES\10763296.str





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chain nodes :
15 16 17 24 25
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 18 19 20 21 22 23 26 27 28
chain bonds :
9-15 15-16 15-17 15-18 24-25 25-26
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 10-11 11-12 12-13
18-19 18-23 19-20 20-21 21-22 22-23 26-27 26-28 27-28
exact/norm bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 9-15 10-11 11-12
12-13 15-16 15-17 15-18 18-19 18-23 19-20 20-21 21-22 22-23 24-25 25-26
26-27 26-28 27-28
isolated ring systems :
containing 1 : 26 :

```

```

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:CLASS 18:Atom 19:Atom 20:Atom
21:Atom 22:Atom 23:Atom 24:CLASS 25:CLASS 26:Atom 27:Atom 28:Atom 29:CLASS

```

L12 STRUCTURE UPLOADED

=> d

L12 HAS NO ANSWERS

L12 STR

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

Structure attributes must be viewed using STN Express query preparation.

=> s l12

SAMPLE SEARCH INITIATED 08:03:47 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 37 TO ITERATE

100.0% PROCESSED 37 ITERATIONS 0 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 376 TO 1104  
PROJECTED ANSWERS: 0 TO 0

L13 0 SEA SSS SAM L12

=> s l12 full

FULL SEARCH INITIATED 08:03:53 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 860 TO ITERATE

100.0% PROCESSED 860 ITERATIONS 1 ANSWERS  
SEARCH TIME: 00.00.01

L14 1 SEA SSS FUL L12

=> s l14 and caplus/lc  
52074487 CAPLUS/LC

L15 1 L14 AND CAPLUS/LC

=> fil caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	172.14	543.08

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-0.75

FILE 'CAPLUS' ENTERED AT 08:04:00 ON 21 SEP 2006

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FILE COVERS 1907 - 21 Sep 2006 VOL 145 ISS 13  
FILE LAST UPDATED: 20 Sep 2006 (20060920/ED)

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<http://www.cas.org/infopolicy.html>

=> s l15

L16            1 L15

=> d ibib abs hitstr

ACCESSION NUMBER: 2002:556143 CAPLUS

DOCUMENT NUMBER: 137:125080

TITLE: Process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temperatures and catalyst loading

INVENTOR(S): Scalone, Michelangelo; Zeibig, Thomas Albert

PATENT ASSIGNEE(S): Hoffmann-LaRoche Inc., Switz.

SOURCE: U.S. Pat. Appl. Publ., 19 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002099223	A1	20020725	US 2002-54462	20020122
US 6777559	B2	20040817		
CA 2434408	AA	20020801	CA 2002-2434408	20020122
WO 2002059089	A2	20020801	WO 2002-EP583	20020122
WO 2002059089	A3	20021031		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CH, CA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1355880	A2	20031029	EP 2002-716673	20020122
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
JP 2004519465	T2	20040702	JP 2002-559391	20020122
US 2004127723	A1	20040701	US 2004-763296	20040122
PRIORITY APPLN. INFO.:			EP 2001-101584	A 20010125
			US 2002-54462	A3 20020122
			WO 2002-EP583	W 20020122

OTHER SOURCE(S): CASREACT 137:125080; MARPAT 137:125080

AB A process for the preparation heterocyclic indene analogs, especially with the preparation of 4-hydroxycarbazole or N-protected 4-hydroxycarbazole, involves cyclocarbonylation followed by saponification. This process avoids high temps. and high catalyst loadings.

IT 444105-40-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);

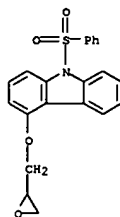
RACT (Reactant or reagent)

(intermediate; process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)

RN 444105-40-2 CAPLUS

CN 9H-Carbazole, 4-(oxiranylmethoxy)-9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)

(Continued)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

=> log y

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

5.57

548.65

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

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-1.50

STN INTERNATIONAL LOGOFF AT 08:04:26 ON 21 SEP 2006

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LOGINID:SSSPTA1600RXA

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

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NEWS 2 "Ask CAS" for self-help around the clock  
NEWS 3 FEB 27 New STN AnaVist pricing effective March 1, 2006  
NEWS 4 MAY 10 CA/CAPplus enhanced with 1900-1906 U.S. patent records  
NEWS 5 MAY 11 KOREAPAT updates resume  
NEWS 6 MAY 19 Derwent World Patents Index to be reloaded and enhanced  
NEWS 7 MAY 30 IPC 8 Rolled-up Core codes added to CA/CAPplus and  
USPATFULL/USPAT2  
NEWS 8 MAY 30 The F-Term thesaurus is now available in CA/CAPplus  
NEWS 9 JUN 02 The first reclassification of IPC codes now complete in  
INPADOC  
NEWS 10 JUN 26 TULSA/TULSA2 reloaded and enhanced with new search and  
and display fields  
NEWS 11 JUN 28 Price changes in full-text patent databases EPFULL and PCTFULL  
NEWS 12 JUL 11 CHEMSAFE reloaded and enhanced  
NEWS 13 JUL 14 FSTA enhanced with Japanese patents  
NEWS 14 JUL 19 Coverage of Research Disclosure reinstated in DWPI  
NEWS 15 AUG 09 INSPEC enhanced with 1898-1968 archive  
NEWS 16 AUG 28 ADISCTI Reloaded and Enhanced  
NEWS 17 AUG 30 CA(SM)/CAPplus(SM) Austrian patent law changes  
NEWS 18 SEP 11 CA/CAPplus enhanced with more pre-1907 records  
  
NEWS EXPRESS JUNE 30 CURRENT WINDOWS VERSION IS V8.01b, CURRENT  
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 26 JUNE 2006.  
  
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NEWS IPC8 For general information regarding STN implementation of IPC 8  
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FILE 'HOME' ENTERED AT 08:10:38 ON 21 SEP 2006

=> fil reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

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STRUCTURE FILE UPDATES: 20 SEP 2006 HIGHEST RN 908067-83-4  
DICTIONARY FILE UPDATES: 20 SEP 2006 HIGHEST RN 908067-83-4

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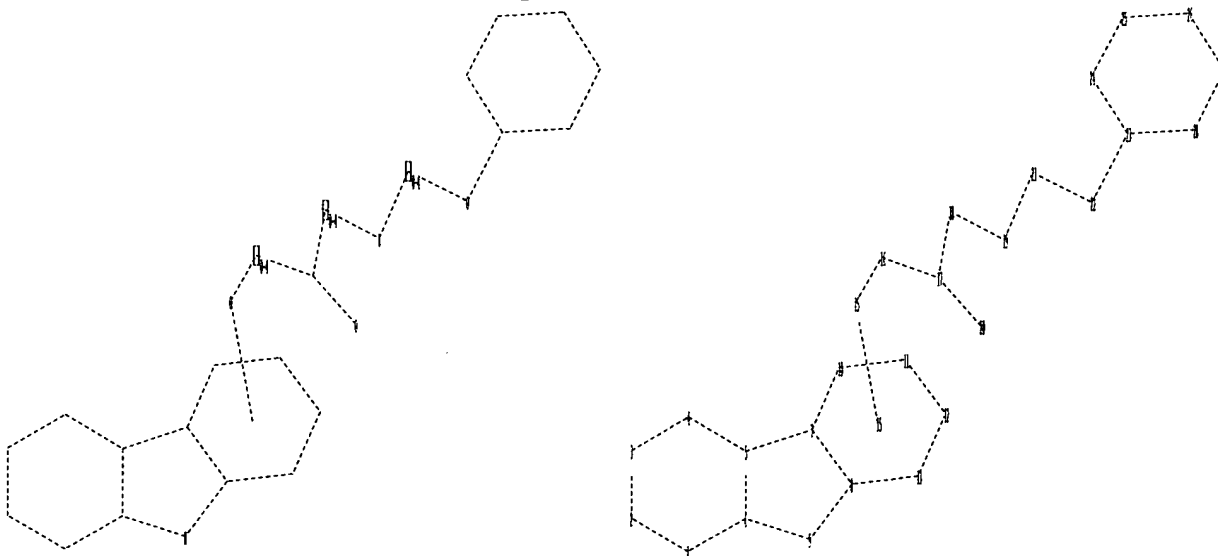
Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and  
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experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\QUERIES\10763296.str



chain nodes :

15 16 17 18 19 20 21 22

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 23 24 25 26 27 28

chain bonds :

15-16 16-17 17-18 17-20 18-19 19-21 21-22 22-23

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 10-11 11-12 12-13  
23-24 23-28 24-25 25-26 26-27 27-28

exact/norm bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 10-11 11-12 12-13  
15-16 16-17 17-18 17-20 18-19 19-21 21-22 22-23 23-24 23-28 24-25 25-26  
26-27 27-28

isolated ring systems :  
containing 1 : 23 :

Match level :

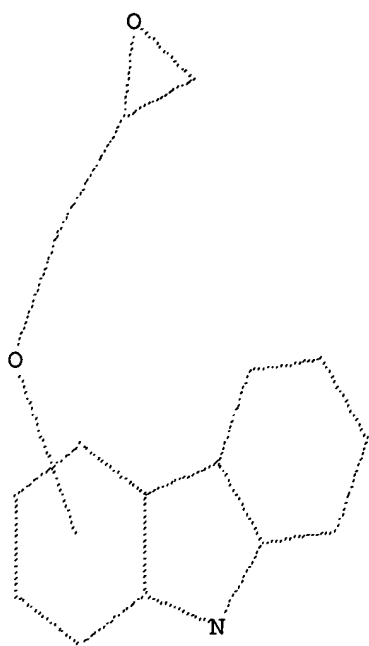
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11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS  
20:CLASS 21:CLASS 22:CLASS 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom  
35:CLASS

L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 08:11:22 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 10 TO ITERATE

100.0% PROCESSED 10 ITERATIONS

1 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*

BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 11 TO 389

PROJECTED ANSWERS: 1 TO 80

L2 1 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 08:11:24 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 151 TO ITERATE



100.0% PROCESSED        151 ITERATIONS  
SEARCH TIME: 00.00.01

26 ANSWERS

L3                    26 SEA SSS FUL L1

=> s l3 and caplus/lc  
      52074487 CAPLUS/LC

L4                    26 L3 AND CAPLUS/LC

=> fil calpus  
'CALPUS' IS NOT A VALID FILE NAME  
SESSION CONTINUES IN FILE 'REGISTRY'  
Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files  
that are available. If you have requested multiple files, you can  
specify a corrected file name or you can enter "IGNORE" to continue  
accessing the remaining file names entered.

=> fil calpus		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	171.70	171.91

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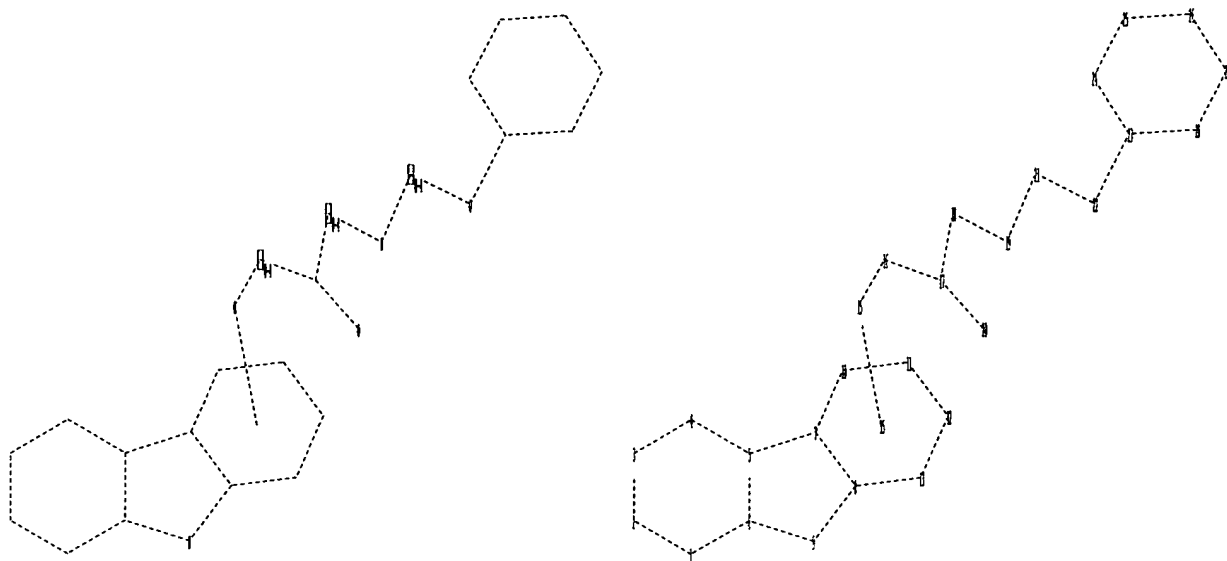
FILE COVERS 1907 - 21 Sep 2006 VOL 145 ISS 13  
FILE LAST UPDATED: 20 Sep 2006 (20060920/ED)

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<http://www.cas.org/infopolicy.html>

=> s l4  
L5                    47 L4

=>  
Uploading C:\Program Files\Stnexp\Queries\QUERIES\10763296.str



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chain nodes :
15 16 17 18 19 20 21 22
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 23 24 25 26 27 28
chain bonds :
15-16 16-17 17-18 17-20 18-19 19-21 21-22 22-23
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 10-11 11-12 12-13
23-24 23-28 24-25 25-26 26-27 27-28
exact/norm bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-10 8-9 8-13 10-11 11-12 12-13
15-16 16-17 17-18 17-20 18-19 19-21 21-22 22-23 23-24 23-28 24-25 25-26
26-27 27-28
isolated ring systems :
containing 1 : 23 :

```

```

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS
20:CLASS 21:CLASS 22:CLASS 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom
35:CLASS

```

L6 STRUCTURE UPLOADED

=> d

L6 HAS NO ANSWERS

L6 STR

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

Structure attributes must be viewed using STN Express query preparation.

=> s 16

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

SAMPLE SEARCH INITIATED 08:13:52 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 698 TO ITERATE

100.0% PROCESSED 698 ITERATIONS 6 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 12375 TO 15545  
PROJECTED ANSWERS: 6 TO 265

L7 6 SEA SSS SAM L6

L8 16 L7

=> s l6 full  
REGISTRY INITIATED  
Substance data SEARCH and crossover from CAS REGISTRY in progress...  
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

FULL SEARCH INITIATED 08:13:57 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 13300 TO ITERATE

100.0% PROCESSED 13300 ITERATIONS 228 ANSWERS  
SEARCH TIME: 00.00.01

L9 228 SEA SSS FUL L6

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COST IN U.S. DOLLARS SINCE FILE TOTAL  
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L3 26 S L1 FULL

L4 26 S L3 AND CAPLUS/LC

FILE 'CAPLUS' ENTERED AT 08:11:34 ON 21 SEP 2006

L5 47 S L4

L6 STRUCTURE UPLOADED

S L6

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L7 6 S L6

FILE 'CAPLUS' ENTERED AT 08:13:53 ON 21 SEP 2006

L8 16 S L7

S L6

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L9 228 S L6 FULL

FILE 'CAPLUS' ENTERED AT 08:13:57 ON 21 SEP 2006

L10 1346 S L9 FULL

FILE 'CAPLUS' ENTERED AT 08:14:01 ON 21 SEP 2006

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=> s l11 and l5

L12 20 L11 AND L5

=> d ibib abs hitstr 1-20

ACCESSION NUMBER: 2006:558278 CAPLUS

DOCUMENT NUMBER: 145:62782

TITLE: Process for the preparation of carvedilol or its enantiomers from the ring-opening reaction of 4-(2,3-epoxypropoxy)carbazole or its enantiomers with an excess of 2-(2-methoxyphenoxy)ethylamine in ethyl acetate as the reaction solvent

INVENTOR(S): Trepat Guixer, Elisenda; Munoz Alvarez, Anna; Pomares Marco, Marta; Marquillas Olondriz, Francisco

PATENT ASSIGNEE(S): Zambon Group S.p.A., Italy

SOURCE: PCT Int. Appl., 11 pp.

CODEN: PIXXD2

Patent

DOCUMENT TYPE: English

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006061364	A1	20060615	WO 2005-EP56469	20051205
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HK, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRIORITY APPLN. INFO.: EP 2004-106438 A 20041209

OTHER SOURCE(S): CASREACT 145:62782

AB A process for the preparation of carvedilol, as well as its optically active R and S enantiomers, comprises the ring-opening reaction of 4-(2,3-epoxypropoxy)carbazole, or its enantiomers, with an excess of 2-(2-methoxyphenoxy)ethylamine using Et acetate as the reaction solvent.

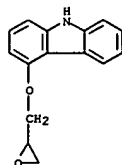
IT 51997-51-4, 4-(2,3-Epoxypropoxy)carbazole 95093-95-1

95093-96-2

RL: RCT (Reactant); RACT (Reactant or reagent) (process for the preparation of carvedilol or its enantiomers from the ring-opening reaction of 4-(2,3-epoxypropoxy)carbazole or its enantiomers with an excess of 2-(2-methoxyphenoxy)ethylamine in Et acetate as the reaction solvent)

RN 51997-51-4 CAPLUS

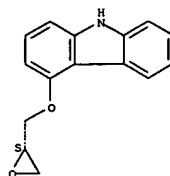
CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



RN 95093-95-1 CAPLUS

CN 9H-Carbazole, 4-[(2S)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

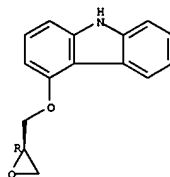
Absolute stereochemistry.



RN 95093-96-2 CAPLUS

CN 9H-Carbazole, 4-[(2R)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 72956-09-3P, Carvedilol 95093-99-5P, (R)-Carvedilol

95094-00-1P, (S)-Carvedilol

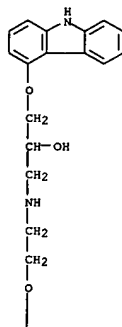
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (process for the preparation of carvedilol or its enantiomers from the

ring-opening reaction of 4-(2,3-epoxypropoxy)carbazole or its enantiomers with an excess of 2-(2-methoxyphenoxy)ethylamine in Et acetate as the reaction solvent)

RN 72956-09-3 CAPLUS

CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



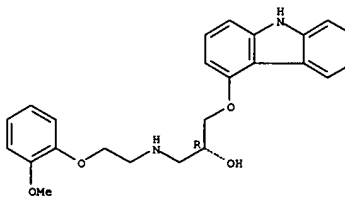
PAGE 2-A



RN 95093-99-5 CAPLUS

CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, (2R)- (9CI) (CA INDEX NAME)

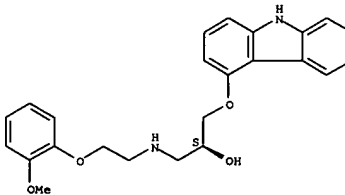
Absolute stereochemistry.



RN 95094-00-1 CAPLUS

CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

ACCESSION NUMBER: 2006:538842 CAPLUS

DOCUMENT NUMBER: 145:46071

TITLE: Preparation of oxypyridazinyl derivatives with inhibitory activity against beta-adrenergic receptors and phosphodiesterase

INVENTOR(S): Taylor, Malcolm George; Klenke, Burkhard; Suzdak,

PATENT ASSIGNEE(S): Peter D.; Mazhari, Reza

SOURCE: Artesian Therapeutics, Inc., USA

PCT Int. Appl., 131 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

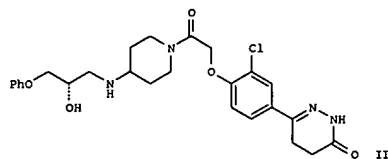
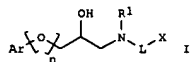
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WO 2006060122	A2	20060608	WO 2005-US40409	20051108
WO 2006060122	C2	20060817		
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RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CH, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRIORITY APPLN. INFO.: US 2004-631599P P 20041130

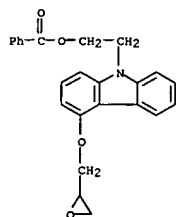
US 2005-717756P P 20050919

OTHER SOURCE(S): MARPAT 145:46071

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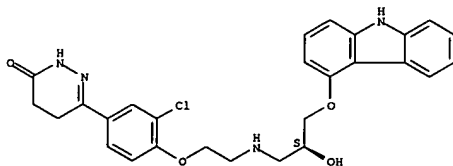


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IT 890018-59-4P 890018-60-7P 890018-61-8P  
 890018-63-0P 890018-64-1P 890018-75-4P  
 890018-80-1P 890018-82-3P 890018-94-7P  
 RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (preparation of oxypyridazinyl derivs. with mixed pde-inhibitory and β-adrenergic antagonist or partial agonist activity for treatment of heart failure)  
 RN 890018-59-4 CAPLUS  
 CN 3(2H)-Pyridazinone, 6-[4-(2-[[[(2S)-3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]ethoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

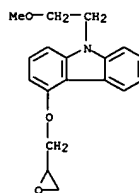


RN 890018-60-7 CAPLUS  
 CN 3(2H)-Pyridazinone, 6-[4-(2-[[[(3S)-3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]ethoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)

(Continued)

AB Title compds. I [n = 0-1; Ar = (un)substituted aryl or heteroaryl radicals; R1 = H, alkyl, alkenyl, cycloalkyl, etc.; L = (un)substituted alkylene, alkenylene, alkynylene, etc.; X = heterocyclic or heterocyclic aryl ligand], and their pharmaceutically acceptable salts, are prepared and disclosed as possessing inhibitory activity against β-adrenergic receptors and phosphodiesterases, including phosphodiesterase 3 (PDE3). Thus, e.g., II was prepared by reaction of (S)-1-phenoxy-3-(piperidin-4-ylamino)propan-2-ol (preparation given) with [2-chloro-4-(6-oxo-1,4,5,6-tetrahydropyridazin-3-yl)phenoxy]acetic acid. Selected compds. of the invention were found in assays for measuring cAMP PDE-3 inhibitory activity to possess IC50 values of less than 1 μM. The present invention further provides pharmaceutical compns. comprising such compds., methods of preparing such compds., and methods of using such compds. for regulating calcium homeostasis, for treating a disease, disorder or condition in which dysregulation of calcium homeostasis is implicated and for treating cardiovascular disease, stroke, epilepsy, an ophthalmic disorder or migraine.

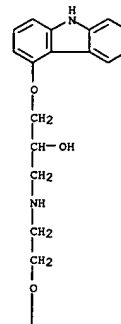
IT 890018-88-9P 890018-90-3P  
 RL: PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (preparation of oxypyridazinyl derivs. with mixed pde-inhibitory and β-adrenergic antagonist or partial agonist activity for treatment of heart failure)  
 RN 890018-88-9 CAPLUS  
 CN 9H-Carbazole, 9-(2-methoxyethyl)-4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



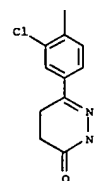
RN 890018-90-3 CAPLUS  
 CN 9H-Carbazole-9-ethanol, 4-(oxiranylmethoxy)-, benzoate (ester) (9CI) (CA INDEX NAME)

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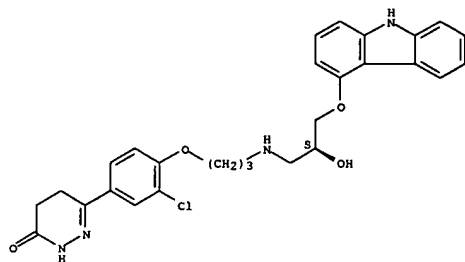


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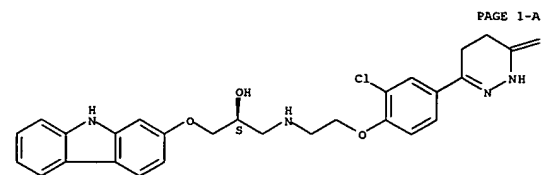
RN 890018-61-8 CAPLUS  
 CN 3(2H)-Pyridazinone, 6-[4-[3-[[[(2S)-3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]propoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 890018-63-0 CAPLUS  
CN 3-(2H)-Pyridazinone, 6-[4-[2-[[[(2S)-3-(9H-carbazol-2-yloxy)-2-hydroxypropyl]amino]ethoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

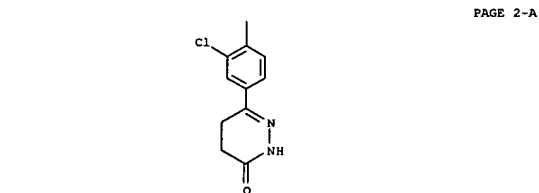


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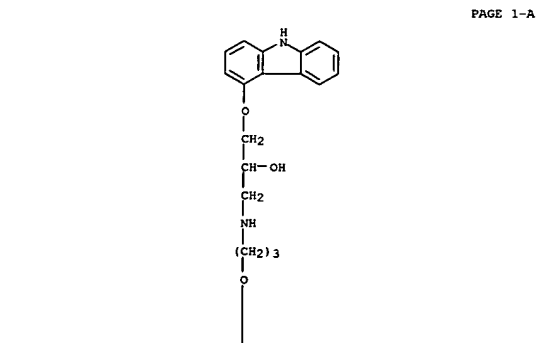
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CN 3-(2H)-Pyridazinone, 6-[4-[3-[[[(2S)-3-(9H-carbazol-2-yloxy)-2-hydroxypropyl]amino]propoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



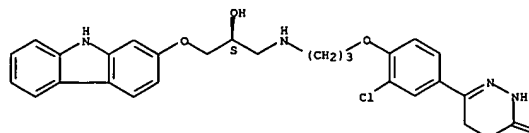
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RN 890018-80-1 CAPLUS  
CN 3-(2H)-Pyridazinone, 6-[4-[3-[[[(2R)-3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]propoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)



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PAGE 1-A

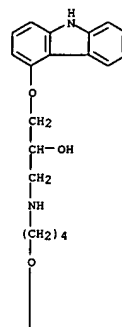


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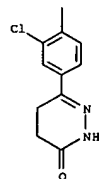
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CN 3-(2H)-Pyridazinone, 6-[4-[4-[[[3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]butoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A

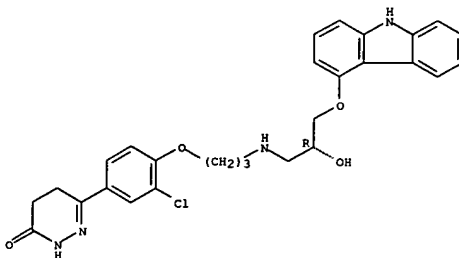


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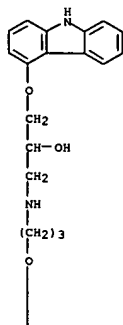
RN 890018-82-3 CAPLUS  
CN 3-(2H)-Pyridazinone, 6-[4-[3-[[[(2R)-3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]propoxy]-3-chlorophenyl]-4,5-dihydro- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

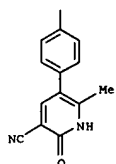


RN 890018-94-7 CAPLUS  
CN 3-Pyridinecarbonitrile, 5-[4-[3-[[[3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]propoxy]phenyl]-1,2-dihydro-6-methyl-2-oxo- (9CI) (CA INDEX NAME)

PAGE 1-A

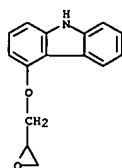
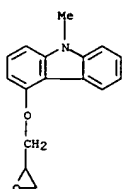


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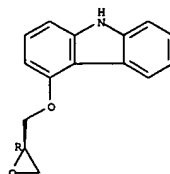
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 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of oxopyridazinyl derivs. with mixed pde-inhibitory and  
 β-adrenergic antagonist or partial agonist activity for treatment  
 of heart failure)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)

RN 890017-26-2 CAPLUS  
 CN 9H-Carbazole, 9-methyl-4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



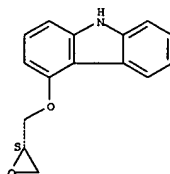
RN 95093-96-2 CAPLUS  
 CN 9H-Carbazole, 4-[(2R)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 95093-95-1P 890017-26-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation of oxopyridazinyl derivs. with mixed pde-inhibitory and  
 β-adrenergic antagonist or partial agonist activity for treatment  
 of heart failure)  
 RN 95093-95-1 CAPLUS  
 CN 9H-Carbazole, 4-[(2S)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L12 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:1288806 CAPLUS  
 DOCUMENT NUMBER: 144:22811  
 TITLE: A novel process for the preparation of

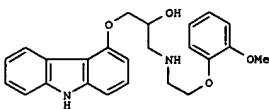
1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)-ethyl]  
 amino]propan-2-ol (carvedilol)  
 INVENTOR(S): Tatur, Venkatasubramanian Radhakrishnan; Sathe,  
 Dhananjay Govind; Kulkarni, Swapnil Jayant  
 PATENT ASSIGNEE(S): USV Limited, India  
 SOURCE: PCT Int. Appl., 14 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005115981	A2	20051208	WO 2005-IN139	20050503
WO 2005115981	A3	20060119		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,  
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 GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KH, KP, KR, KZ,  
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA,  
 NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL,  
 SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
 ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,  
 RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,  
 MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: IN 2004-MU479 A 20040507

OTHER SOURCE(S): CASREACT 144:22811  
 GI

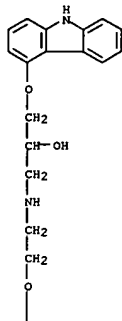


AB This invention disclosed a novel process for preparation of carvedilol  
 (I) in high purity by using eco friendly solvents. The process comprised  
 reacting 4-hydroxycarbazole with epichlorohydrin in presence of an organic  
 solvent and a base at temps. between 10° and 30°, and then  
 reacting the resultant 4-(2,3-epoxypropoxy)carbazole with a salt of  
 2-(2-methoxyphenoxy)ethylamine, preferably the hydrochloride salt, in  
 presence of a base and a hydroxylic solvent at temps. between 30°  
 and 90°.



L12 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 IT 72956-09-3P, 1-(9H-Carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]propan-2-ol  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (eco friendly process for the preparation of carvedilol, a pharmaceutically useful adrenergic  $\beta$ -receptor antagonist)  
 RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-(9CI) (CA INDEX NAME)

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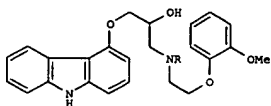
PAGE 2-A



IT 51997-51-4P, 4-(2,3-Epoxypropoxy)carbazole  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (eco friendly process for the preparation of carvedilol, a pharmaceutically useful adrenergic  $\beta$ -receptor antagonist)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)

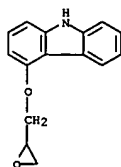
L12 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:1260624 CAPLUS  
 DOCUMENT NUMBER: 144:22806  
 TITLE: Process for the preparation of carvedilol  
 INVENTOR(S): Kankan, Rajendra Narayanrao; Rao, Dharmara; Ramachandra  
 PATENT ASSIGNEE(S): Cipla Limited, India; Wain, Christopher Paul  
 SOURCE: PCT Int. Appl., 29 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005113502	A1	20051201	WO 2005-GB1978	20050519
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.:		GB 2004-11273		A 20040520
OTHER SOURCE(S):		CASREACT 144:22806		
GI				



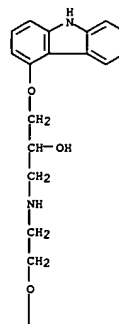
AB A process for the preparation of carvedilol I (R = H) was disclosed and comprised aromatization/reduction of 1,2,3,9-tetrahydro-4H-carbazol-4-one by refluxing with Raney Ni and NaOH in water for 20 h to form 4-hydroxy-9H-carbazole, reaction of resulting alc. with epichlorohydrin using tetrabutylammonium bromide and NaOH in water to give 4-oxiranylmethoxy-9H-carbazole, reaction of the intermediate epoxide with MeO-2-C6H4O(CH2)2NHCH2Ph using K2CO3 in water to give carvedilol N-benzyl derivative I (R = CH2Ph), and finally, debenzilation of I (R = CH2Ph) using Pd/C in EtOAc and water to give the desired carvedilol. This invention further provided carvedilol prepared by the disclosed process, and pharmaceutical compns. containing the same, for therapeutic uses, such as adrenergic  $\beta$ -receptor antagonists, vasodilators and treatment of angina pectoris.

L12 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



L12 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 IT 72956-09-3P, Carvedilol  
 RL: PAC (Pharmacological activity); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)  
 (preparation of carvedilol for use in pharmaceutical compns. as adrenergic  $\beta$ -receptor antagonists and vasodilators useful for the treatment of hypertension and angina pectoris)  
 RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-(9CI) (CA INDEX NAME)

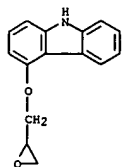
PAGE 1-A



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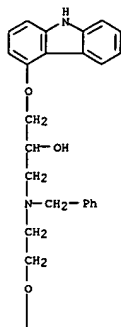


IT 51997-51-4P, 4-Oxiranylmethoxy-9H-carbazole 72955-94-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of carvedilol for use in pharmaceutical compns. as adrenergic  $\beta$ -receptor antagonists and vasodilators useful for the treatment of hypertension and angina pectoris)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



RN 72955-94-3 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]- (9CI) (CA INDEX NAME)

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REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS

ACCESSION NUMBER: 2005:1128799 CAPLUS  
 DOCUMENT NUMBER: 143:386916  
 TITLE: An improved process for the manufacture of carvedilol  
 INVENTOR(S): Kankan, Rajendra Narayan Rao; Rao, Dharamraj  
 Ramchandra  
 PATENT ASSIGNEE(S): Cipla Ltd., India  
 SOURCE: Indian, 11 pp.  
 CODEN: INXXAP  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 186587	A	20011006	IN 1999-BO583	19990817
PRIORITY APPLN. INFO.:			IN 1999-BO583	19990817

OTHER SOURCE(S): CASREACT 143:386916; MARPAT 143:386916  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB An improved process for the manufacture of Carvedilol I, a potent antihypertensive (no biol. data given) by catalytic hydrogenation of N-substituted Carvedilol II [R1 = (un)substituted CH2Ph; formed by reacting carbazole III with a substituted amine IV]. Thus, N-alkylating benzylamine with 2-(2-methoxyphenoxy)ethyl bromide followed by reaction

of the resulting N-[2-(2-methoxyphenoxy)ethyl]benzenemethanamine hydrochloride with 4-(2,3-epoxypropoxy)carbazole, and subsequent hydrogenation of the II [R1 = CH2Ph] afforded carvedilol I.

IT 72955-94-3P

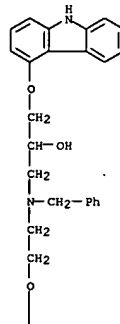
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (improved process for the manufacture of carvedilol)

RN 72955-94-3 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]- (9CI) (CA INDEX NAME)

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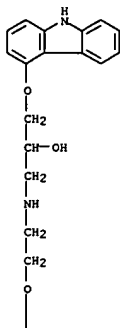
IT 72956-09-3P, Carvedilol

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation) (improved process for the manufacture of carvedilol)

RN 72956-09-3 CAPLUS

CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

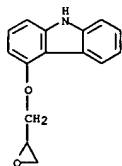
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IT 51997-51-4, 4-(2,3-Epoxypropoxy)carbazole  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (improved process for the manufacture of carvedilol)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



L12 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:962205 CAPLUS  
 DOCUMENT NUMBER: 143:266815  
 TITLE: Process for the manufacture of racemic carvedilol from  
 4-(oxiran-2-ylmethoxy)-9H-carbazole and  
 2-(2-methoxyphenoxy)ethylamine  
 INVENTOR(S): Shah, Dhira] R.; Naik, Ashish P.; Purohit, Parva Y.;  
 PATENT ASSIGNEE(S): Sharma, Rajivkumar; Agarwal, Virendra Kumar  
 SOURCE: Cadila Healthcare Limited, India  
 PCT Int. Appl., 14 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005080329	A2	20050901	WO 2005-IN56	20050222
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

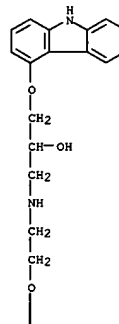
PRIORITY APPLN. INFO.: IN 2004-MU219 A 20040223  
 OTHER SOURCE(S): CASREACT 143:266815; MARPAT 143:266815  
 AB Carvedilol of high HPLC purity (>99.5 %) is prepared by the ring-opening addition reaction of 4-(oxiran-2-ylmethoxy)-9H-carbazole with 2-(2-methoxyphenoxy)ethylamine followed by salification of the impure carvedilol with an organic acid (e.g., salicylic acid) and neutralization of the carvedilol salt (e.g., carvedilol salicylate) with a base to give pure carvedilol.

IT 787598-89-4P, Carvedilol oxalate 787598-91-8P,  
 Carvedilol salicylate 863664-91-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (in a process for the manufacture of racemic carvedilol from 4-(oxiran-2-ylmethoxy)-9H-carbazole and 2-(2-methoxyphenoxy)ethylamine)  
 RN 787598-89-4 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethyl)amino]-, ethanedioate (1:1) (salt) (9CI) (CA INDEX NAME)

CM 1  
 CRN 72956-09-3  
 CMF C24 H26 N2 O4

L12 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

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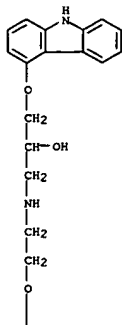
CM 2  
 CRN 144-62-7  
 CMF C2 H2 O4



RN 787598-91-8 CAPLUS  
 CN Benzoic acid, 2-hydroxy-, compd. with 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethyl)amino]-2-propanol (1:1) (9CI) (CA INDEX NAME)

CM 1  
 CRN 72956-09-3  
 CMF C24 H26 N2 O4

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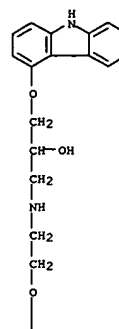
CM 2  
CRN 69-72-7  
CMF C7 H6 O3



RN 863664-91-9 CAPLUS  
CN 2-Propanol,  
1-(9H-carbazol-4-yloxy)-3-([2-(2-methoxyphenoxy)ethyl]amino)-,  
(2R,3R)-2,3-dihydroxybutanedioate (1:1) (salt) (9CI) (CA INDEX NAME)

CM 1  
CRN 72956-09-3

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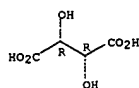


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CM 2  
CRN 87-69-4  
CMF C4 H6 O6

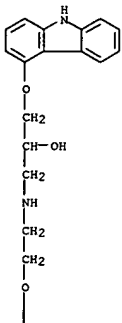
Absolute stereochemistry.



IT 72956-09-3P, Carvedilol  
RL: PUR (Purification or recovery); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

L12 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
(process for the manuf. of racemic carvedilol from 4-(oxiran-2-ylmethoxy)-9H-carbazole and 2-(2-methoxyphenoxy)ethylamine)  
RN 72956-09-3 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-([2-(2-methoxyphenoxy)ethyl]amino)- (9CI) (CA INDEX NAME)

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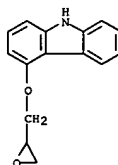


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IT 51997-51-4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(process for the manufacture of racemic carvedilol from 4-(oxiran-2-ylmethoxy)-9H-carbazole and 2-(2-methoxyphenoxy)ethylamine)  
RN 51997-51-4 CAPLUS  
CN 9H-Carbazole, 4-(oxiran-2-ylmethoxy)- (9CI) (CA INDEX NAME)

L12 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



ACCESSION NUMBER: 2004:1154673 CAPLUS  
DOCUMENT NUMBER: 142:93675

TITLE: A process for preparation of

1-[9H-carbazol-4-yloxy]-3-

INVENTOR(S): Chhabada, Vijay Chhangamal; Rehani, Rajeev Budhdev; Thennati, Rajamannar

PATENT ASSIGNEE(S): Sun Pharmaceutical Industries Limited, India

SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004/113296	A1	20041229	WO 2004-IN52	20040304
<p>W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LA, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW</p>				
<p>RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG</p>				

PRIORITY APPLN. INFO.: IN 2003-MU647 A 20030620

IN 2003-MU721 A 20030717

OTHER SOURCE(S): CASREACT 142:93675; MARPAT 142:93675

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The present invention provides a process for preparation of 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]propan-2-ol (I) in racemic form or in the form of optically active R or S enantiomer or its pharmaceutically acceptable salt, comprising, reacting 4-(oxiranylmethoxy)-9H-carbazole (II) or the R or S enantiomer thereof with a compound of formula (III) (wherein R<sub>1</sub> = benzyl or substituted benzyl), in an aprotic organic solvent in presence of a catalyst to obtain a compound of formula (IV) (wherein R<sub>1</sub> is as defined above), or the R or S enantiomer thereof. The resultant compound IV is subjected to debenzylation reaction by catalytic hydrogenation to obtain the compound I, if desired converting the resultant compound I to a pharmaceutically acceptable salt thereof. Thus, to 400 mL EtOAc, 70 g (0.27 mol) anhydrous N-[2-(2-(methoxyphenoxy)ethyl)benzylamine, 10.25 g (0.075 mol) anhydrous ZnCl<sub>2</sub>, and 50 g (0.21 mol) 4-(oxiranylmethoxy)-9H-carbazole were added and the reaction mixture was heated to 70-75° for 3 h (TLC control for checking conversion to N-benzylcarvedilol), cooled to ambient temperature, and

L12 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
quenched into 100 mL 12-15% aq. NH<sub>3</sub>. The aq. layer was sepd., and the product enriched org. layer was washed with water till neutral Ph, treated

with charcoal, and filtered. To this soln. of N-benzyl carvedilol in EtOAc, 7 g wet 5% Pd/C catalyst (50% moisture content) was added and the reaction mixt. was hydrogenated at 3.5-4.5 Kg/cm<sup>2</sup> at temp. 60-70° for a period of about 10 h and filtered. The filtrate was concd. to remove EtOAc. To the resultant syrupy mass n-butanol (100 mL) was added and the soln. was stirred for .apprx.10 h. The crystals were sepd. by filtration, washed successively with n-butanol (50 mL) and toluene (50 mL)

to obtain carvedilol (47 g) which was recrystd. from 3 vols. EtOAc to obtain carvedilol (42 g).

IT 224782-73-4P, (S)-1-[N-Benzyl-N-[2-(2-methoxyphenoxy)ethyl]amino]-3-[[9H-carbazol-4-yl]oxy]propan-2-ol 224782-76-7P, (R)-1-[N-Benzyl-N-[2-(2-methoxyphenoxy)ethyl]amino]-3-[[9H-carbazol-4-yl]oxy]propan-2-ol

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

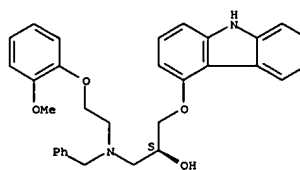
(intermediate; preparation of carvedilol by amination of oxiranylmethoxycarbazole with N-(methoxyphenoxyethyl)benzylamine and hydrogenolysis of N-benzylcarvedilol)

RN 224782-73-4 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl] (phenylm ethyl)amino]-, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

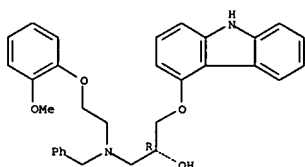


RN 224782-76-7 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl] (phenylm ethyl)amino]-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT 72955-94-3P, N-Benzylcarvedilol

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of carvedilol by amination of oxiranylmethoxycarbazole

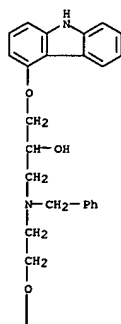
with N-(methoxyphenoxyethyl)benzylamine and hydrogenolysis of N-benzylcarvedilol)

RN 72955-94-3 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl] (phenylm ethyl)amino]- (9CI) (CA INDEX NAME)

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IT 72956-09-3P, Carvedilol 95093-99-5P,

(R)-1-(9H-Carbazol-4-yloxy)-3-[[2-(2-(methoxy)phenoxy)ethyl]amino]propan-2-ol 95094-00-1P, (S)-1-(9H-Carbazol-4-yloxy)-3-[[2-(2-(methoxy)phenoxy)ethyl]amino]propan-2-ol

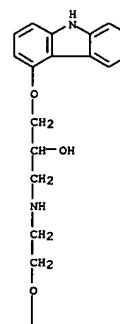
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
(preparation of carvedilol by amination of oxiranylmethoxycarbazole

with N-(methoxyphenoxyethyl)benzylamine and hydrogenolysis of N-benzylcarvedilol)

RN 72956-09-3 CAPLUS

CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

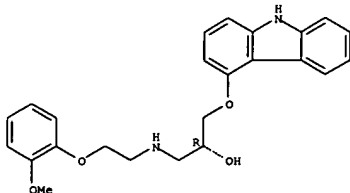
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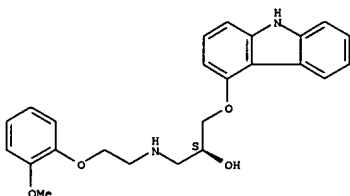
RN 95093-99-5 CAPLUS  
CN 2-Propanol,  
1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
(2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 95094-00-1 CAPLUS  
CN 2-Propanol,  
1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
(2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

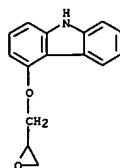


IT 51997-51-4, 4-(Oxiranylmethoxy)-9H-carbazole 95093-95-1,  
(S)-4-(Oxiranylmethoxy)-9H-carbazole 95093-96-2,  
(R)-4-(Oxiranylmethoxy)-9H-carbazole  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant; preparation of carvedilol by amination of

L12 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS  
FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

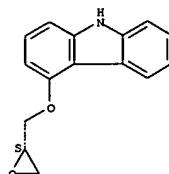
L12 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
oxiranylmethoxycarbazole with N-(methoxyphenoxyethyl)benzylamine and  
hydrogenolysis of N-benzylcarvedilol)

RN 51997-51-4 CAPLUS  
CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



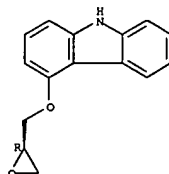
RN 95093-95-1 CAPLUS  
CN 9H-Carbazole, 4-[(2S)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 95093-96-2 CAPLUS  
CN 9H-Carbazole, 4-[(2R)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

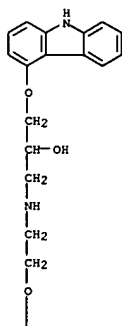
Absolute stereochemistry.



L12 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:927171 CAPLUS  
DOCUMENT NUMBER: 141:395415  
TITLE: Process for the preparation of crystalline carvedilol  
form-II  
INVENTOR(S): Ramanjaneyulu, Gorantla Seeta; Kumar, Indukuri  
Venkata  
Sunil; Rao, Ketavarapu Narasimha; Kishore, Jammula  
Vera Venkata Krishna  
PATENT ASSIGNEE(S): Matrix Laboratories Ltd., India  
SOURCE: PCT Int. Appl., 18 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004094378	A1	20041104	WO 2004-IN104	20040416
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1615888	A1	20060118	EP 2004-727971	20040416
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR			
PRIORITY APPLN. INFO.:			IN 2003-MA328	A 20030421
			WO 2004-IN104	W 20040416

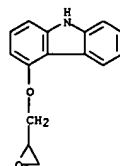
OTHER SOURCE(S): CASREACT 141:395415  
AB The present invention provides a cost-effective, industrially feasible process for the manufacture of crystalline carvedilol form-II using novel carvedilol salts comprising a step of reacting 4-(2,3-epoxypropoxy)carbazole with 2-(2-methoxyphenoxy)ethylamine followed by acidification with mineral acid in presence of an organic solvent to yield acid addition salts, (e.g. carvedilol oxalate), treatment of the said salts with base(s) in presence of organic solvent(s), water, and isolation from the organic solvent(s) followed by crystallization from Et acetate.  
IT 72956-09-3P, Carvedilol  
RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation of crystalline carvedilol form-II by reaction of 4-(2,3-epoxypropoxy)carbazole with 2-(2-methoxyphenoxy)ethylamine)  
RN 72956-09-3 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)



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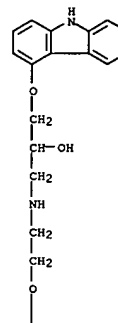


IT 51997-51-4P, 4-(2,3-Epoxypropoxy)carbazole 787598-89-4P, Carvedilol oxalate 787598-91-8P, Carvedilol salicylate  
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of crystalline carvedilol form-II by reaction of 4-(2,3-epoxypropoxy)carbazole with 2-(2-methoxyphenoxy)ethylamine)  
RN 51997-51-4 CAPLUS  
CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



RN 787598-89-4 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, ethanedioate (1:1) (salt) (9CI) (CA INDEX NAME)  
CM 1  
CRN 72956-09-3  
CHF C24 H26 N2 O4

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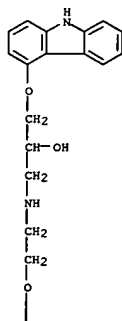


CM 2  
CRN 144-62-7  
CHF C2 H2 O4



RN 787598-91-8 CAPLUS  
CN Benzoic acid, 2-hydroxy-, compd. with 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-2-propanol (1:1) (9CI) (CA INDEX NAME)  
CM 1  
CRN 72956-09-3  
CHF C24 H26 N2 O4

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CM 2  
CRN 69-72-7  
CHF C7 H6 O3

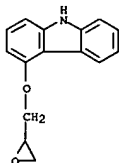


REFERENCE COUNT: 4  
FORMAT THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

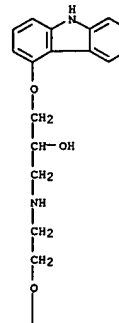
ACCESSION NUMBER: 2004:412919 CAPLUS  
DOCUMENT NUMBER: 140:406735  
TITLE: Process for the preparation of carvedilol from  
4-(oxirane-2-ylmethoxy)-9H-carbazole and  
2-(2-methoxyphenoxy)ethylamine salts  
INVENTOR(S): Hercek, Richard; Skoda, Alojz; Proksa, Bohumil  
PATENT ASSIGNEE(S): Zentiva, A.S., Slovakia  
SOURCE: PCT Int. Appl., 13 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004041783	A1	20040521	WO 2003-SK20	20031104
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, T2, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,			
TG				
AU 2003301861	A1	20040607	AU 2003-301861	20031104
EP 1558575	A1	20050803	EP 2003-810732	20031104
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
US 2006167077	A1	20060727	US 2005-533809	20050505
PRIORITY APPLN. INFO.:			SK 2002-1595	A 20021108
			WO 2003-SK20	W 20031104

OTHER SOURCE(S): CASREACT 140:406735  
AB Carvedilol is prepared in high yield and selectivity by the reaction of 4-(oxirane-2-ylmethoxy)-9H-carbazole with acid-addition salts of 2-(2-methoxyphenoxy)ethylamine [e.g., 2-(2-methoxyphenoxy)ethylamine hydrochloride] in the presence of a base (e.g., potassium carbonate) in an C2-5 alc. solvent (e.g., isopropanol) at an elevated temperature (e.g., 83°).  
IT 72956-09-3P, Carvedilol  
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
(process for the preparation of carvedilol from 4-(oxirane-2-ylmethoxy)-9H-carbazole and 2-(2-methoxyphenoxy)ethylamine salts)  
RN 72956-09-3 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethyl)amino]- (9CI) (CA INDEX NAME)



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IT 51997-51-4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(process for the preparation of carvedilol from 4-(oxirane-2-ylmethoxy)-9H-carbazole and 2-(2-methoxyphenoxy)ethylamine salts)  
RN 51997-51-4 CAPLUS  
CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)

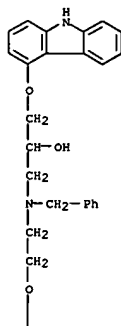
ACCESSION NUMBER: 2002:556143 CAPLUS  
DOCUMENT NUMBER: 137:125080  
TITLE: Process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temperatures and catalyst loading  
INVENTOR(S): Scalone, Michelangelo; Zeibig, Thomas Albert  
PATENT ASSIGNEE(S): Hoffmann-LaRoche Inc., Switz.  
SOURCE: U.S. Pat. Appl. Publ., 19 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002099223	A1	20020725	US 2002-54462	20020122
US 6777559	B2	20040817		
CA 2434408	AA	20020801	CA 2002-2434408	20020122
WO 2002059089	A2	20020801	WO 2002-EP583	20020122
WO 2002059089	A3	20021031		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, T2, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1355880	A2	20031029	EP 2002-716673	20020122
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
JP 2004519465	T2	20040702	JP 2002-559391	20020122
US 2004127723	A1	20040701	US 2004-763296	20040122
PRIORITY APPLN. INFO.:			EP 2001-101584	A 20010125
			US 2002-54462	A3 20020122
			WO 2002-EP583	W 20020122

OTHER SOURCE(S): CASREACT 137:125080; MARPAT 137:125080  
AB A process for the preparation heterocyclic indene analogs, especially with the preparation of 4-hydroxycarbazole or N-protected 4-hydroxycarbazole, involves cyclocarbonylation followed by saponification. This process avoids high temps. and high catalyst loadings.  
IT 72955-94-3P 444105-40-2P 444105-41-3P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(intermediate: process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)  
RN 72955-94-3 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethyl)(phenylmethyl)amino]- (9CI) (CA INDEX NAME)



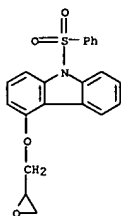
PAGE 1-A



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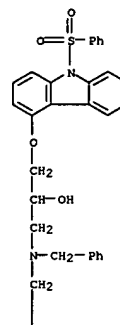


RN 444105-40-2 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)-9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)

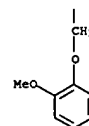


RN 444105-41-3 CAPLUS  
 CN 9H-Carbazole,  
 4-[2-hydroxy-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]propoxy]-9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)

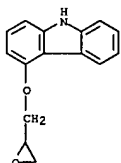
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PAGE 2-A

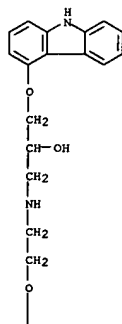


IT 51997-51-4P, 4-Oxiranylmethoxy-9H-carbazole 72956-09-3P, Carvedilol  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

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REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

ACCESSION NUMBER: 2002:180462 CAPLUS  
DOCUMENT NUMBER: 137:288465  
TITLE: Synthesis and bioactivity of  
1-(9H-carbazol-4-yloxy)-3-

AUTHOR(S): substituted amino-2-propanol compounds  
Wang, Lichen; Zhang, Yiyun; Zhang, Luyong; Jiang,  
Zhenzhou  
CORPORATE SOURCE: Department of Organic Chemistry, Center of Drug  
Pharmacokinetics, China Pharmaceutical University,  
Nanjing, 210009, Peop. Rep. China

SOURCE: Zhongguo Yaoke Daxue Xuebao (2001), 32(6), 408-411  
CODEN: ZHYXES; ISSN: 1000-5048

PUBLISHER: Zhongguo Yaoke Daxue

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

OTHER SOURCE(S): CASREACT 137:288465

AB The new compds. with  $\beta$ -adrenergic receptor antagonistic action were  
screened. Using carbazolol as a lead compound,

1-(9H-carbazol-4-yloxy)-3-

substituted amino-2-propanol compds. were designed and synthesized of  
which all were not reported previously. Their structures were identified  
by IR, <sup>1</sup>HNMR, EA, or HRMS. The preliminary biol. tests suggested that

all the ten compds. can inhibit isoprenaline-induced tachycardia to different  
extents, and three of them showed better activity.

IT 467469-58-5P

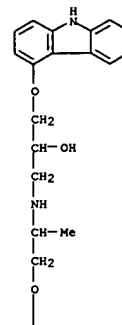
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU  
(Therapeutic use); BIOL (Biological study); PREP (Preparation); USES  
(Uses)

(synthesis and bioactivity of 1-(9H-carbazol-4-yloxy)-3-substituted  
amino-2-propanol compds.)

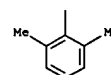
RN 467469-58-5 CAPLUS

CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-([2-(2,6-dimethylphenoxy)-1-  
methyl ethyl]amino)- (9CI) (CA INDEX NAME)

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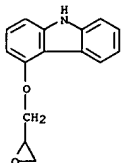


IT 51997-51-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(synthesis and bioactivity of 1-(9H-carbazol-4-yloxy)-3-substituted  
amino-2-propanol compds.)

RN 51997-51-4 CAPLUS

CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



ACCESSION NUMBER: 2002:10275 CAPLUS

DOCUMENT NUMBER: 136:90914

TITLE: Preparation of carvedilol and its crystalline hydrate  
and solvate

INVENTOR(S): Hildesheim, Jean; Finogeev, Sergey; Aronhime,  
Judith;

PATENT ASSIGNEE(S): Dolitzky, Ben-Zion; Ben-Valid, Shoshana; Kor, Ilan  
Teva Pharmaceutical Industries Ltd., Israel; Teva  
Pharmaceuticals USA, Inc.

SOURCE: PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

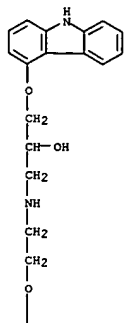
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002000216	A1	20020103	WO 2001-US20760	20010628
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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2413702	AA	20020103	CA 2001-2413702	20010628
US 2002143045	A1	20021003	US 2001-894798	20010628
US 6699997	B2	20040302		
EP 1299101	A1	20030409	EP 2001-950671	20010628
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004501191	T2	20040115	JP 2002-504998	20010628
CN 1733727	A	20060215	CN 2005-10086095	20010628
EP 1655285	A1	20060510	EP 2005-21195	20010628
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
ZA 2002010282	A	20031219	ZA 2002-10282	20021219
US 2004152757	A1	20040805	US 2004-758025	20040116
US 7056942	B2	20060606		
US 2004225132	A1	20041111	US 2004-758026	20040116
US 2006030614	A1	20060209	US 2005-217643	20050831
PRIORITY APPLN. INFO.:				
			US 2000-246358P	P 20001107
			CN 2001-814616	A3 20010628
			EP 2001-950671	A3 20010628
			US 2001-894798	A3 20010628
			WO 2001-US20760	W 20010628
			US 2004-758025	A3 20040116

AB This invention relates to an improved process of preparing carvedilol, as well as a new crystalline hydrate and solvate and forms of carvedilol,

L12 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 processes for the manuf. thereof, and pharmaceutical compns. thereof.  
 Carvedilol was prepd. by the reaction of 2-(2-methoxyphenoxy)ethylamine  
 and 4-(oxiran-2-ylmethoxy)-9H-carbazole. Cryst. carvedilol form II was  
 prepd. by crystg. carvedilol from isoamyl alc.  
 IT 72956-09-3P, Carvedilol 385765-36-6P  
 RL: PRP (Properties); SPM (Synthetic preparation); THU (Therapeutic use);  
 BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (preparation of carvedilol and its crystalline hydrate and solvate)  
 RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-  
 (9CI) (CA INDEX NAME)



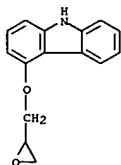
PAGE 1-A



PAGE 2-A

RN 385765-36-6 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
 hydrochloride, hydrate (9CI) (CA INDEX NAME)

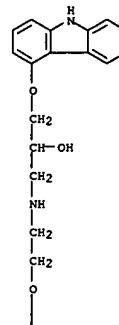
L12 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L12 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

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PAGE 2-A



•x HCl

•x H<sub>2</sub>O

IT 51997-51-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of carvedilol and its crystalline hydrate and solvate)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)

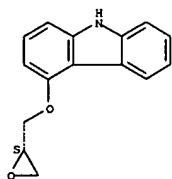
L12 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:747162 CAPLUS  
 DOCUMENT NUMBER: 135:288690  
 TITLE: Intermediates for preparing the R- or S- enantiomer  
 and N-benzyl derivatives of  
 1-[9'H-carbazol-4'-yloxy]-  
 3-[2''-(2'''-methoxyphenoxy)ethylamino]propan-2-ol  
 [carvedilol]  
 INVENTOR(S): Ratkai, Zoltan; Barkoczy, Jozsef; Simig, Gyula;  
 Gregor, Tamas; Vereczkey, Gyoergyi Donath; Nemeth,  
 Norbert; Nagy, Kalman; Cselenyak, Judit; Szabo,  
 Tibor;  
 Balazs, Laszlo; Doman, Imre; Greff, Zoltan; Nagy,  
 Peter Kotay; Seres, Peter  
 PATENT ASSIGNEE(S): Egis Gyogyszergyar Rt., Hung.  
 SOURCE: Eur. Pat. Appl., 9 pp.  
 CODEN: EPXKDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1142874	A2	20011010	EP 2001-111214	19981124
EP 1142874	A3	20031022		
R: BE, DE, ES, FR, GB, IT, SI, LT, LV, RO				
RU 2216539	C2	20031120	RU 1998-120700	19981118
RU 2245875	C2	20050210	RU 2003-107772	19981118
EP 918055	A1	19990526	EP 1998-122114	19981124
EP 918055	B1	20030423		
EP 918055	B2	20060426		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRIORITY APPLN. INFO.:			HU 1997-2209	A 19971124
			HU 1998-2180	A 19981001
			EP 1998-122114	A3 19981124
			RU 1998-120700	A 19981118

OTHER SOURCE(S): CASREACT 135:288690  
 AB  
 R-(+)-1-[N-benzyl-2'-[[2''-(methoxyphenoxy)ethyl]amino]-3-[9'''H-carbazol-4'''-yloxy]propan-2-ol and S-(-)-1-[N-benzyl-2'-[[2''-(methoxyphenoxy)ethyl]amino]-3-[9'''H-carbazol-4'''-yloxy]propan-2-ol and the R- or S- enantiomer of carvedilol are prepared in high yield and selectivity by the ring-opening cleavage of the resp. R- or S- enantiomer of 4-(oxiranylmethoxy)-9H-carbazole with N-2-[[2''-(methoxyphenoxy)ethyl]benzylamine to give the N-benzyl deriva., and the chiral carvedilol enantiomers are prepared by the reductive debenzilation of the resp. chiral N-benzyl derivs. in the presence of Pd/C and hydrazine hydrate.  
 IT 95093-95-1, S-4-(Oxiranylmethoxy)-9H-carbazole 95093-96-2  
 R-4-(Oxiranylmethoxy)-9H-carbazole  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (intermediates for preparing the R- or S- enantiomer and N-benzyl deriva.  
 of  
 1-[9'H-carbazol-4'-yloxy]-3-[2''-(2'''-methoxyphenoxy)ethylamino]propa

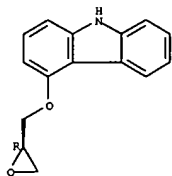
L12 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 n-2-ol [carvedilol])  
 RN 95093-95-1 CAPLUS  
 CN 9H-Carbazole, 4-[(2S)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 95093-96-2 CAPLUS  
 CN 9H-Carbazole, 4-[(2R)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

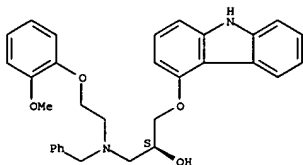


IT 95093-99-5P, 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, R- 224782-76-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (Intermediates for preparing the R- or S- enantiomer and N-benzyl

derivs. of  
 1-[9'H-carbazol-4'-yloxy]-3-[2''-(2''-methoxyphenoxy)ethylamino]propa  
 n-2-ol [carvedilol])  
 RN 95093-99-5 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
 (2R)- (9CI) (CA INDEX NAME)

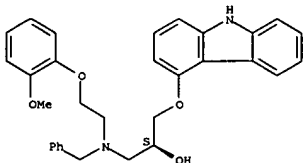
Absolute stereochemistry.

L12 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



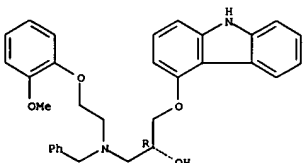
RN 224782-73-4 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl] (phenylm  
 ethyl)amino]-, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



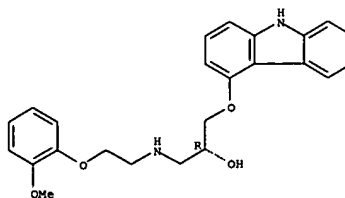
RN 224782-76-7 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl] (phenylm  
 ethyl)amino]-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



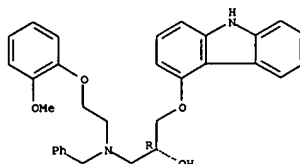
IT 95094-00-1P, 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, S-  
 RL: SPN (Synthetic preparation); PREP (Preparation)

L12 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 224782-76-7 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl] (phenylm  
 ethyl)amino]-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT 224782-73-4DP, acid-addition salts 224782-73-4P  
 224782-76-7DP, acid-addition salts  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (Intermediates for preparing the R- or S- enantiomer and N-benzyl

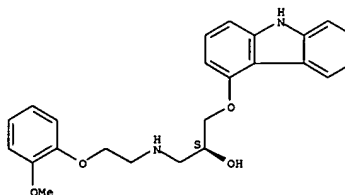
derivs. of  
 1-[9'H-carbazol-4'-yloxy]-3-[2''-(2''-methoxyphenoxy)ethylamino]propa  
 n-2-ol [carvedilol])  
 RN 224782-73-4 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl] (phenylm  
 ethyl)amino]-, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

L12 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

(prepn. of)  
 RN 95094-00-1 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
 (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



ACCESSION NUMBER: 2001:747161 CAPLUS  
DOCUMENT NUMBER: 135:288689  
TITLE: Process for preparing  
1-[9'H-carbazol-4'-yloxy]-3-[(2'-

(2'-methoxyphenoxy)ethylamino]propan-2-ol  
(carvedilol)  
INVENTOR(S): Ratkai, Zoltan; Barkoczy, Jozsef; Simig, Gyula;  
Gregor, Tamas; Vereczkey, Gyorgyi Donath; Nemeth,  
Norbert; Nagy, Kalman; Cselenyak, Judit; Szabo,

Tibor;  
Balazs, Laszlo; Doman, Imre; Greff, Zoltan; Nagy,  
Peter Kotay; Seres, Peter  
Egis Gyogyszergyar Rt., Hung.  
Eur. Pat. Appl., 11 pp.  
CODEN: EPXKDW

PATENT ASSIGNEE(S):  
SOURCE:

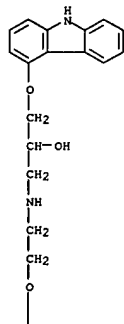
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1142873	A2	20011010	EP 2001-111213	19981124
EP 1142873	A3	20030910		
EP 1142873	B1	20040421		
R: BE, DE, ES, FR, GB, IT, SI, LT, LV, RO				
RU 2216539	C2	20031120	RU 1998-120700	19981118
RU 2245875	C2	20050210	RU 2003-107772	19981118
EP 918055	A1	19990526	EP 1998-122114	19981124
EP 918055	B1	20030423		
EP 918055	B2	20060426		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRIORITY APPLN. INFO.:			HU 1997-2209	A 19971124
			HU 1998-2180	A 19981001
			EP 1998-122114	A3 19981124
			RU 1998-120700	A 19981118

## OTHER SOURCE(S):

CASREACT 135:288689  
AB A process for preparing 1-[9'H-carbazol-4'-yloxy]-3-[(2'-methoxyphenoxy)ethylamino]propan-2-ol as well as acid addition salts of this compound, was developed in which the N-[2-(2'-methoxy-phenoxy)-ethyl]benzylamine is reacted with epichlorohydrin, and the formed 1-N-benzyl-2'-[(2'-methoxy-phenoxy)ethylamino]-3-propan-2-ol is reacted with 4-hydroxy-9H-carbazole and the resulting 1-N-benzyl-2'-(methoxyphenoxyethylamino)-3-[9'H-carbazol-4'-yloxy]propan-2-ol is debenzylated by catalytic hydrogenation and, if desired, the 1-[9'H-carbazol-4'-yloxy]-3-[(2'-methoxyphenoxy)ethylamino]propan-2-ol thus obtained is reacted with acids to yield acid addition their salts, or  
if desired, liberating the free 1-[9'H-carbazol-4'-yloxy]-3-[(2'-methoxyphenoxy)ethylamino]propan-2-ol base from acid addition salts thereof  
and, if desired, converting the free 1-[9'H-carbazol-4'-yloxy]-3-[(2'-methoxyphenoxy)ethylamino]propan-2-ol base into other acid addition salts and/or, if desired, separating the enantiomers.

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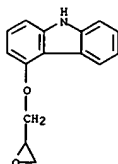


IT 51997-51-4

RL: RCT (Reactant); RACT (Reactant or reagent)  
(process for preparing 1-[9'H-carbazol-4'-yloxy]-3-[(2'-methoxyphenoxy)ethylamino]propan-2-ol [carvedilol])

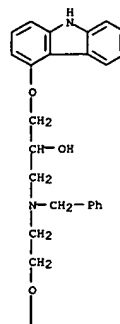
RN 51997-51-4 CAPLUS

CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



IT 72955-94-3P  
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(process for preparing 1-[9'H-carbazol-4'-yloxy]-3-[(2'-methoxyphenoxy)ethylamino]propan-2-ol [carvedilol])  
RN 72955-94-3 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethyl)(phenylmethyl)amino]- (9CI) (CA INDEX NAME)

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IT 72956-09-3P, Carvedilol

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
(process for preparing 1-[9'H-carbazol-4'-yloxy]-3-[(2'-methoxyphenoxy)ethylamino]propan-2-ol [carvedilol])

RN 72956-09-3 CAPLUS

CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethylamino)- (9CI) (CA INDEX NAME)

ACCESSION NUMBER: 1999:344783 CAPLUS

DOCUMENT NUMBER: 130:352184

TITLE: Preparation of carvedilol

INVENTOR(S): Ratkai, Zoltan; Barkoczy, Jozsef; Simig, Gyula;  
Gregor, Tamas; Vereczkey, Gyorgyi Donath; Nemeth,  
Norbert; Nagy, Kalman; Caelenyak, Judit; Szabo,

Tibor;

Balazs, Laszlo; Doman, Imre; Greff, Zoltan; Nagy,  
Peter Kotay; Seres, Peter

PATENT ASSIGNEE(S): Egis Gyogyszergyar Rt., Hung.

SOURCE: Eur. Pat. Appl., 17 pp.

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 918055	A1	19990526	EP 1998-122114	19981124
EP 918055	B1	20030423		
EP 918055	B2	20060426		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
HR 980590	B1	20031231	HR 1998-980590	19981112
SK 284109	B6	20040908	SK 1998-1560	19981112
RU 2216539	C2	20031120	RU 1998-120700	19981118
RU 2245875	C2	20050210	RU 2003-107772	19981118
EP 1142873	A2	20011010	EP 2001-111213	19981124
EP 1142873	A3	20030910		
EP 1142873	B1	20040421		
R: BE, DE, ES, FR, GB, IT, SI, LT, LV, RO				
EP 1142874	A2	20011010	EP 2001-111214	19981124
EP 1142874	A3	20031022		
R: BE, DE, ES, FR, GB, IT, SI, LT, LV, RO				
ES 2196459	T3	20031216	ES 1998-122114	19981124
ES 2221875	T3	20050116	ES 2001-111213	19981124
PRIORIT APPLN. INFO.:				
			HU 1997-2209	A 19971124
			HU 1998-2180	A 19981001
			RU 1998-120700	A 19981118
			EP 1998-122114	A3 19981124

AB The title process comprises, e.g., condensation of 4-oxiranylmethoxy-9H-carbazole with 2-(MeO)C<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>Ph in a protic organic solvent followed

by deprotection.

IT 72955-94-3P 224782-73-4P 224782-76-7P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of carvedilol)

RN 72955-94-3 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylm

ethyl)amino]- (9CI) (CA INDEX NAME)

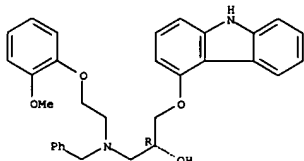
RN 224782-76-7 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylm

ethyl)amino]-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT 72956-09-3P, Carvedilol 95093-99-5P, (+)-Carvedilol

95094-00-1P, (-)-Carvedilol

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of carvedilol)

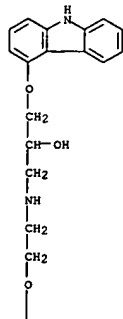
RN 72956-09-3 CAPLUS

CN 2-Propanol,

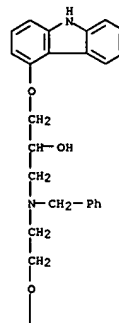
1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-

(9CI) (CA INDEX NAME)

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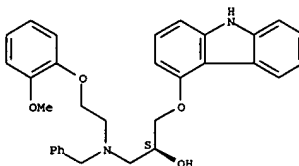
RN 224782-73-4 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylm

ethyl)amino]-, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



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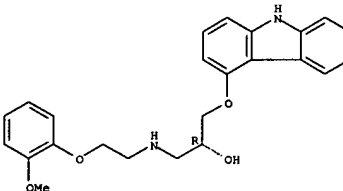
RN 95093-99-5 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,

(2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



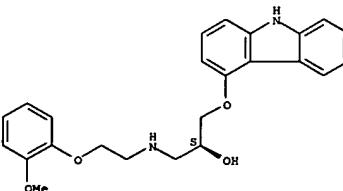
RN 95094-00-1 CAPLUS

CN 2-Propanol,

1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,

(2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 51997-51-4, 4-Oxiranylmethoxy-9H-carbazole 95093-95-1,

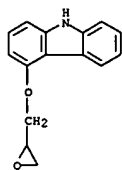
(S)-4-Oxiranylmethoxy-9H-carbazole 95093-96-2,

(R)-4-Oxiranylmethoxy-9H-carbazole

RL: RCT (Reactant); RACT (Reactant or reagent)

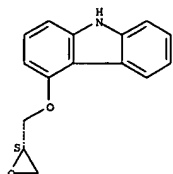
(preparation of carvedilol)

L12 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



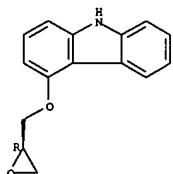
RN 95093-95-1 CAPLUS  
 CN 9H-Carbazole, 4-[(2S)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



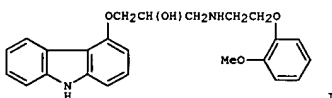
RN 95093-96-2 CAPLUS  
 CN 9H-Carbazole, 4-[(2R)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L12 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1998:654214 CAPLUS  
 DOCUMENT NUMBER: 130:3743  
 TITLE: Synthesis and crystal structure of carvedilol  
 AUTHOR(S): Chen, Wei-Min; Zeng, Long-Mei; Yu, Kai-Bei; Xu, Ji-Hong  
 CORPORATE SOURCE: Inst. Pharmaceutical Sci., The First Military Med. Univ., Canton, 510515, Peop. Rep. China  
 SOURCE: Jiegou Huaxue (1998), 17(5), 325-328  
 CODEN: JHUADF; ISSN: 0254-5861  
 PUBLISHER: "Jiegou Huaxue" Bianji Weiyuanhui  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI

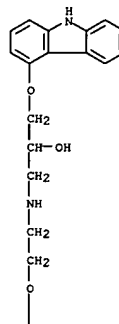


AB The crystal structure of carvedilol (I), prepared from 4-(2,3-epoxypropoxy)carbazole and 2-MeOC6H4OCH2CH2NH2, was determined by single-crystal x-ray diffraction. The crystal is composed of a pair of enantiomers, and there are hydrogen bonds O-H-N between the two enantiomers. There are two planes in the mol.  
 IT 72956-09-3P, Carvedilol  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of)  
 RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethyl)amino]- (9CI) (CA INDEX NAME)

L12 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

L12 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

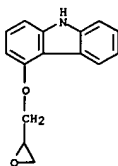
PAGE 1-A



PAGE 2-A



IT 51997-51-4  
 RL: RCT (Reactant); RACT (Reactant or reagent) (preparation and crystal structure of carvedilol)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



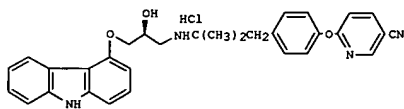
L12 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L12 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1998:169451 CAPLUS  
DOCUMENT NUMBER: 128:230241  
TITLE: Preparation of carbazole derivs. as selective  $\beta_3$   
adrenergic agonists  
INVENTOR(S): Crowell, Thomas A.; Evrard, Deborah A.; Jones,  
Charles  
PATENT ASSIGNEE(S): D.; Muehl, Brian S.; Rito, Christopher J.; Shuker,  
Anthony J.; Thorpe, Andrew J.; Thrasher, Kenneth J.  
Eli Lilly and Company, USA; Crowell, Thomas A.;  
Evrard, Deborah A.; Jones, Charles D.; Muehl, Brian  
S.; Rito, Christopher J.; Shuker, Anthony J.; Thorpe,  
Andrew J.; Thrasher, Kenneth J.  
SOURCE: PCT Int. Appl., 135 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9809625	A1	19980312	WO 1997-US15230	19970828
W:	AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW			
RW:	GH, KE, LS, MW, SD, SZ, UG, ZW, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
EP 827746	A1	19980311	EP 1997-306613	19970827
EP 827746	B1	20020403		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
AT 215369	E	20020415	AT 1997-306613	19970827
ES 2171839	T3	20020916	ES 1997-306613	19970827
CA 2236269	AA	19980312	CA 1997-2236269	19970828
AU 9740941	A1	19980326	AU 1997-40941	19970828
JP 2002513387	T2	20020508	JP 1998-512756	19970828
ZA 9707917	A	19990603	ZA 1997-7917	19970903
US 6140352	A	20001031	US 1998-68192	19980504
US 6413991	B1	20020702	US 2000-610096	20000630
US 2002165234	A1	20021107	US 2002-120302	20020410
US 6686372	B2	20040203		
US 2005043337	A1	20050224	US 2003-694467	20031027
US 7041684	B2	20060509		
PRIORITY APPLN. INFO.:			US 1996-25818P	P 19960905
			US 1996-29228P	P 19961030
			WO 1997-US15230	W 19970828
			US 1998-68192	A3 19980504
			US 2000-610096	A1 20000630
			US 2002-120302	A1 20020410

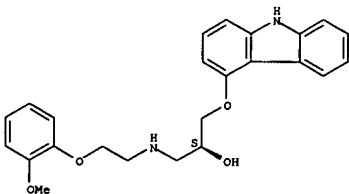
OTHER SOURCE(S): MARPAT 128:230241  
GI

L12 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



AB Title compds. R1X1CH(OH)CH2N(R3)C(R5R6)X2X3R4 I (X1 = OCH2, SCH2, bond;  
X2 = bond, alkylene; X3 = O, S, bond; R1 = fused heterocycle; R3 = H, alkyl;  
R4 = (un)substituted heterocycle, naphthyl, etc.; R5 = H, alkyl; R6 = H,  
alkyl CO-O-alkyl; R5-R6 = cycloalkyl; R6-X2 = cycloalkyl; etc.) are  
prepared  
for selective  $\beta_3$  receptor agonists which are useful in the treatment  
of Type II diabetes and obesity, comprising administering to mammal. The  
title compound II was prepared from  
(2S)-(+)-4-(oxiranylmethoxy)-9H-carbazole  
and 2-(4-(2-amino-2-methylpropyl)phenoxy)-5-pyridinecarbonitrile which  
was  
prepared from 2-fluoropyridine and 4-(2-amino-2-methylpropyl)phenol.  
IT 95094-00-1P 204592-58-5P 204592-76-7P  
204593-21-5P 204593-28-2P  
RL: BAC (Biological activity or effector, except adverse); BSU  
(Biological  
study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);  
BIOL (Biological study); PREP (Preparation); USES (Uses)  
(preparation of carbazole derivs. as adrenergic agonists)  
RN 95094-00-1 CAPLUS  
CN 2-Propanol.  
1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
(2S)- (9CI) (CA INDEX NAME)

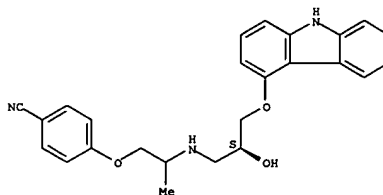
Absolute stereochemistry.



RN 204592-58-5 CAPLUS  
CN Benzonitrile, 4-[2-[[3-(9H-carbazol-4-yloxy)-2-  
hydroxypropyl]amino]propoxy]-, [2(S)]- (9CI) (CA INDEX NAME)

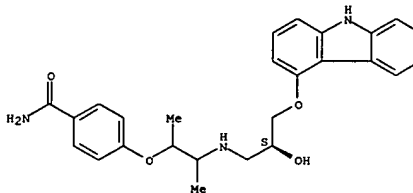
Absolute stereochemistry.

L12 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 204592-76-7 CAPLUS  
CN Benzanide, 4-[2-[[3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]-1-  
methylpropoxy]- (9CI) (CA INDEX NAME)

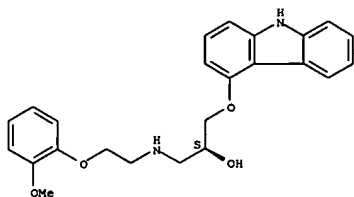
Absolute stereochemistry.



RN 204593-21-5 CAPLUS  
CN 2-Propanol,  
1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
monohydrochloride, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

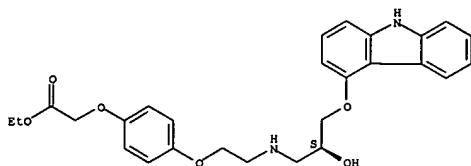




● HCl

RN 204593-28-2 CAPLUS  
CN Acetic acid, [4-[[2-[[3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]ethoxy]phenoxy]-, ethyl ester, hydrochloride (20:37), (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



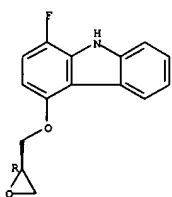
● 37/20 HCl

IT 95093-95-1, (S)-(+)-4-(Oxiranylmethoxy)-9H-carbazole  
204593-47-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of carbazole derivs. as adrenergic agonists)  
RN 95093-95-1 CAPLUS  
CN 9H-Carbazole, 4-[(2S)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

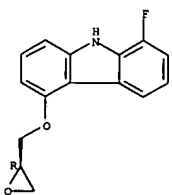
RN 204592-49-4 CAPLUS  
CN 9H-Carbazole, 1-fluoro-4-(oxiranylmethoxy)-, (R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

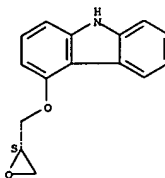


RN 204592-52-9 CAPLUS  
CN 9H-Carbazole, 1-fluoro-5-(oxiranylmethoxy)-, (R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

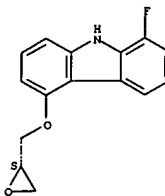


REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT



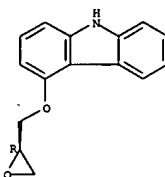
RN 204593-47-5 CAPLUS  
CN 9H-Carbazole, 1-fluoro-5-(oxiranylmethoxy)-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

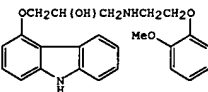


IT 95093-96-2P 204592-49-4P 204592-52-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of carbazole derivs. as adrenergic agonists)  
RN 95093-96-2 CAPLUS  
CN 9H-Carbazole, 4-[(2R)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



ACCESSION NUMBER: 1994:270010 CAPLUS  
DOCUMENT NUMBER: 120:270010  
TITLE: Synthesis of the enantiomers and three racemic metabolites of Carvedilol labeled to high specific activity with tritium  
AUTHOR(S): Senderoff, S. G.; Villani, A. J.; Landvatter, S. W.; Garms, K. T.; Heys, J. R.  
CORPORATE SOURCE: Dep. Synth. Chem., SmithKline Beecham Pharm., King of Prussia, PA, 19406, USA  
SOURCE: Journal of Labelled Compounds and Radiopharmaceuticals  
(1993), 33(12), 1091-105  
CODEN: JLCRD4; ISSN: 0362-4803  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
GI

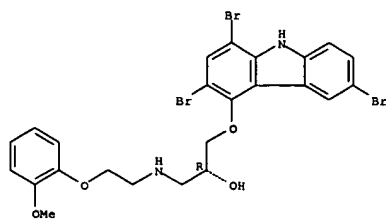


AB Carvedilol (SK&F 105517) (I) possesses unique cardiovascular activity, and is under development for indications such as angina and hypertension. Tritium labeled enantiomers of Carvedilol and racemates of three metabolites were needed for pharmacol. and drug metabolic studies. These compds. were synthesized by catalytic tritium-halogen exchange using tritium gas and 10% palladium-on-carbon catalyst. The precursors were polyhalogenated in the carbazole ring. Direct electrophilic bromination of the enantiomers of Carvedilol gave precursors that were converted to the corresponding tritiated final products by catalytic tritium halogen exchange. Bromination of 4-(2,3-epoxypropyloxy)-9H-carbazole gave an intermediate that was converted to the halogenated precursors of the racemic metabolites. Elaboration of this intermediate, 1,3,6-tribromo-4-(2,3-epoxypropyloxy)-9H-carbazole, to the desired metabolite precursors was achieved by nucleophilic epoxide opening with suitably functionalized N-benzyl aryloxyethylamines. Catalytic tritium-halogen exchange upon the brominated metabolite precursors was accompanied by cleavage of N- and O-benzyl protecting groups. Radiochem. purities of all tritiated final products were greater than 98% after preparative HPLC. Specific activities of the final products, determined by mass spectrometry, ranged from 35 to 76 Ci/mmol. Optical purity of the Carvedilol enantiomers, determined by chiral HPLC, was greater than 99%.

IT 154582-45-3P 154582-46-4P 154582-49-7P  
154582-50-0P 154582-54-4P 154582-58-8P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(intermediate in preparation of tritium labeled Carvedilol)

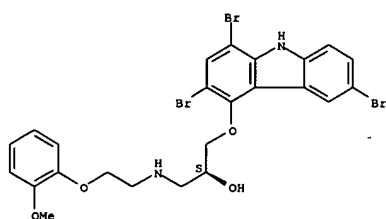
RN 154582-45-3 CAPLUS  
CN 2-Propanol, 1-[[2-(2-methoxyphenoxy)ethyl]amino]-3-[[1,3,6-tribromo-9H-carbazol-4-yl]oxy]-, (R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

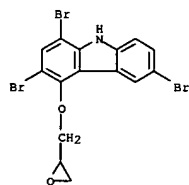


RN 154582-46-4 CAPLUS  
CN 2-Propanol, 1-[[2-(2-methoxyphenoxy)ethyl]amino]-3-[(1,3,6-tribromo-9H-carbazol-4-yl)oxy]-, (S)- (9CI) (CA INDEX NAME)

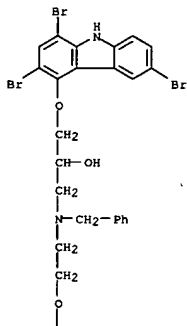
Absolute stereochemistry.



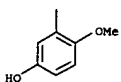
RN 154582-49-7 CAPLUS  
CN 9H-Carbazole, 1,3,6-tribromo-4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



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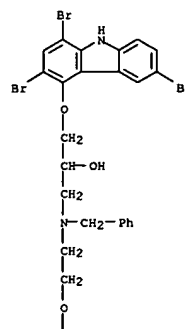
PAGE 2-A



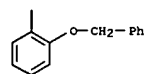
RN 154582-58-8 CAPLUS  
CN Phenol, 4-[[2-hydroxy-3-[(1,3,6-tribromo-9H-carbazol-4-yl)oxy]propyl] (phenylmethyl)amino]ethoxy]-3-methoxy- (9CI) (CA INDEX NAME)

RN 154582-50-0 CAPLUS  
CN 2-Propanol, 1-[[2-(2-(phenylmethoxy)phenoxy)ethyl] (phenylmethyl)amino]-3-[(1,3,6-tribromo-9H-carbazol-4-yl)oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A

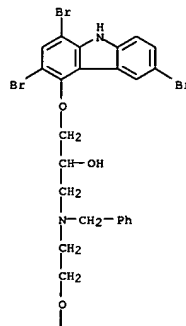


PAGE 2-A

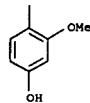


RN 154582-54-4 CAPLUS  
CN Phenol, 3-[[2-[[2-hydroxy-3-[(1,3,6-tribromo-9H-carbazol-4-yl)oxy]propyl] (phenylmethyl)amino]ethoxy]-4-methoxy- (9CI) (CA INDEX NAME)

PAGE 1-A

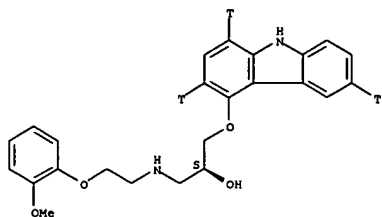


PAGE 2-A



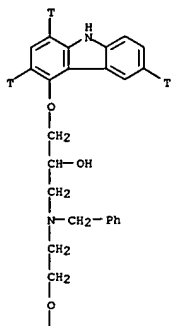
IT 154582-59-9P 154582-60-2P 154582-61-3P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 154582-59-9 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yl)-1,3,6-tris-oxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

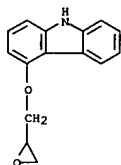
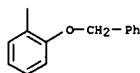


RN 154582-60-2 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yl-1,3,6-tri-oxy)-3-[[2-(2-phenylmethoxyphenoxy)ethyl](phenylmethyl)amino]- (9CI) (CA INDEX NAME)

PAGE 1-A

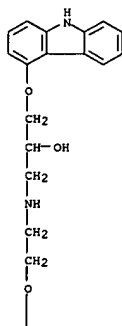


PAGE 2-A



RN 72956-09-3 CAPLUS  
CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A

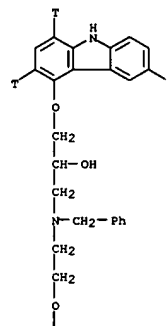


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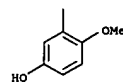


RN 154582-61-3 CAPLUS  
CN Phenol, 3-[2-[[3-(9H-carbazol-4-yl-1,3,6-tri-oxy)-2-hydroxypropyl](phenylmethyl)amino]ethoxy]-4-methoxy- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IT 51997-51-4 72956-09-3, SKF 105517  
RL: RCT (Reactant): RACT (Reactant or reagent)  
(reactant, in preparation of tritium labeled Carvedilol)  
RN 51997-51-4 CAPLUS  
CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)

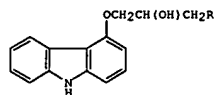
L12 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1985:113292 CAPLUS  
DOCUMENT NUMBER: 102:113292  
TITLE: Optically active R- and S-carbazole derivatives  
INVENTOR(S): Leinert, Herbert  
PATENT ASSIGNEE(S): Boehringer Mannheim G.m.b.H., Fed. Rep. Ger.  
SOURCE: Ger. Offen., 18 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3319027	A1	19841129	DE 1983-3319027	19830526
EP 127099	A1	19841205	EP 1984-105747	19840519
EP 127099	B1	19870520		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
AT 27273	E	19870615	AT 1984-105747	19840519
US 4697022	A	19870929	US 1984-612255	19840521
FI 8402046	A	19841127	FI 1984-2046	19840522
FI 80018	B	19891229		
FI 80018	C	19900410		
AU 8428480	A1	19841129	AU 1984-28480	19840522
AU 551116	B2	19860417		
JP 5922473	A2	19841214	JP 1984-102778	19840523
JP 05027622	B4	19930421		
CA 1259071	A1	19890905	CA 1984-454948	19840523
DK 8402551	A	19841127	DK 1984-2551	19840524
DK 169331	B1	19941010		
NO 8402084	A	19841127	NO 1984-2084	19840525
NO 164537	B	19900709		
NO 164537	C	19901017		
ZA 8403976	A	19850130	ZA 1984-3976	19840525
ES 532838	A1	19850201	ES 1984-532838	19840525
HU 34160	O	19850228	HU 1984-2038	19840525
HU 193011	B	19870828		
IL 71876	A1	19871030	IL 1984-71876	19840526
US 4824963	A	19890425	US 1987-49673	19870513
CA 1257279	A2	19890711	CA 1988-578901	19880929
US 4985454	A	19910115	US 1989-299750	19890119
US 5071868	A	19911210	US 1991-631641	19910128
JP 05208957	A2	19930820	JP 1992-256343	19920925
JP 06013508	B4	19940223		
DK 9300913	A	19930806	DK 1993-913	19930806
DK 169333	B1	19941010		

PRIORITY APPLN. INFO.:

DE 1983-3319027	A	19830526
EP 1984-105747	A	19840519
US 1984-612255	A3	19840521
CA 1984-454948	A3	19840523
US 1987-49673	A3	19870513
US 1989-299750	A3	19890119

OTHER SOURCE(S): MARPAT 102:113292  
GI

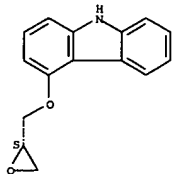


AB The title carbazoles I [R = (un)substituted amino] were prepared. Thus, (R)-(-)-epichlorohydrin, prepared in 6 steps from D-(-)-mannitol, was treated with 4-hydroxycarbazole to give (S)-(+)-4-(2,3-epoxypropoxy)carbazole, which was treated with Me<sub>2</sub>CHNH<sub>2</sub> to give (S)-(-)-I (R = Me<sub>2</sub>CHNH<sub>2</sub>).

IT 95093-95-1P 95093-96-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and amination of)

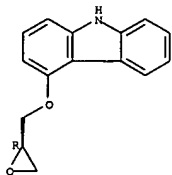
RN 95093-95-1 CAPLUS  
 CN 9H-Carbazole, 4-[(2S)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 95093-96-2 CAPLUS  
 CN 9H-Carbazole, 4-[(2R)-oxiranylmethoxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



ACCESSION NUMBER: 1980:128716 CAPLUS  
 DOCUMENT NUMBER: 92:128716  
 TITLE: Carbazolyl-4-oxopropanolamine derivatives  
 INVENTOR(S): Wiedemann, Fritz; Kampe, Wolfgang; Thiel, Max;  
 Sponer,  
 PATENT ASSIGNEE(S): Gisbert; Roesch, Egon; Dietmann, Karl  
 SOURCE: Boehringer Mannheim G.m.b.H., Fed. Rep. Ger.  
 Ger. Offen., 27 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2815926	A1	19791018	DE 1978-2815926	19780413
CA 1129416	A1	19820810	CA 1979-324667	19790402
DK 7901419	A	19791014	DK 1979-1419	19790406
DK 154555	B	19881128		
DK 154555	C	19890619		
FI 7901142	A	19791014	FI 1979-1142	19790406
FI 70406	B	19860327		
FI 70406	C	19860912		
AU 7945820	A1	19791018	AU 1979-45820	19790406
AU 522975	B2	19820708		
ES 479396	A1	19800416	ES 1979-479396	19790406
SU 810079	A3	19810228	SU 1979-2745301	19790406
EP 4920	A1	19791031	EP 1979-101063	19790407
EP 4920	B1	19810805		
IL 57020	R: BE, CH, DE, FR, GB, IT, LU, NL, SE	19820730	IL 1979-57020	19790408
DD 143607	C	19800903	DD 1979-212096	19790409
CS 227007	P	19840416	CS 1979-2434	19790410
JP 54157558	A2	19791212	JP 1979-43119	19790411
JP 01023462	B4	19890502		
ZA 7901732	A	19800528	ZA 1979-1732	19790411
HU 21840	O	19820227	HU 1979-B01774	19790412
HU 179433	B	19821028		
AT 7902762	A	19840115	AT 1979-2762	19790412
AT 375639	B	19840827		
CS 227047	B2	19840416	CS 1982-6106	19820820
US 4503067	A	19850305	US 1983-479921	19830404
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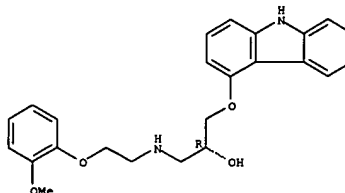
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 US 1979-21394 A1 19790316  
 CS 1979-2434 A3 19790410  
 US 1980-198975 A1 19801021

OTHER SOURCE(S): MARPAT 92:128716  
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\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

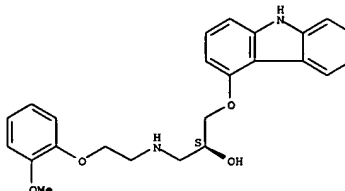
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 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 95093-99-5 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
 (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



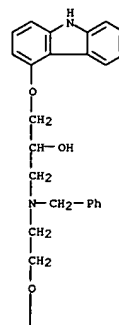
RN 95094-00-1 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
 (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



AB A wide range of I (R = H, lower alkyl, or aryl; R1 = H, lower alkyl, or aralkyl, R2 and R3 independently were H or lower alkyl, X = CH<sub>2</sub>, O, S, or valence bond; Ar = mono- or bicyclic aryl or pyridyl) (apprx.50 compds.) were prepared as β-sympatholytics and vasodilators (no data), in most cases by reaction of 4-(oxiranylmethoxy)carbazole (II) with an amine. Thus, 6.0 g II and 7.6 g 2-MeOC<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub> were stirred 20 h at 70° to give 61% III. Also prepared were, e.g., IV and V.

IT 72955-94-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and acetylation of)  
 RN 72955-94-3 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]- (9CI) (CA INDEX NAME)



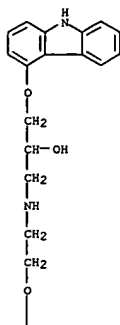
PAGE 1-A



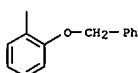
PAGE 2-A

IT 72955-92-1P 72955-93-2P 72955-95-4P  
 72971-47-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and hydrogenolysis of)

L12 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 RN 72955-92-1 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(phenylmethoxy)phenoxy]ethyl]  
 amino]- (9CI) (CA INDEX NAME)



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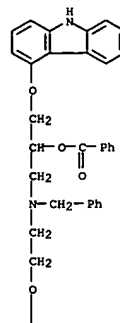


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RN 72955-93-2 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]-, benzoate (ester), monohydrochloride (9CI) (CA INDEX NAME)

L12 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

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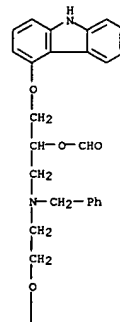


● HCl

RN 72955-95-4 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]-, formate (ester), monohydrochloride (9CI) (CA INDEX NAME)

L12 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

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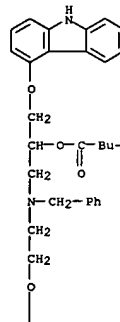


● HCl

RN 72971-47-2 CAPLUS  
 CN Propanoic acid, 2,2-dimethyl-, 2-(9H-carbazol-4-yloxy)-1-[[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]methyl]ethyl ester, monohydrochloride (9CI) (CA INDEX NAME)

L12 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

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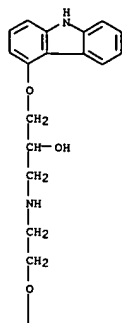
PAGE 2-A



● HCl

IT 72955-91-0P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and oxidation of)  
 RN 72955-91-0 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-(methylthio)phenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

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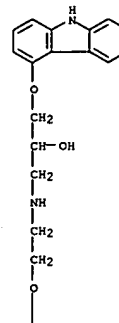


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IT 72956-09-3P 72956-10-6P 72956-11-7P  
 72956-12-8P 72956-14-0P 72956-15-1P  
 72956-16-2P 72956-17-3P 72956-18-4P  
 72956-22-0P 72956-23-1P 72956-24-2P  
 72956-25-3P 72956-26-4P 72956-27-5P  
 72956-29-7P 72956-30-0P 72956-31-1P  
 72956-35-5P 72956-36-6P 72956-37-7P  
 72956-38-8P 72956-40-2P 72956-41-3P  
 72956-42-4P 72956-44-6P 72956-45-7P  
 72956-46-8P 72957-31-4P 72957-32-5P  
 73050-15-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-(2-methoxyphenoxy)ethyl)amino]-  
 (9CI) (CA INDEX NAME)

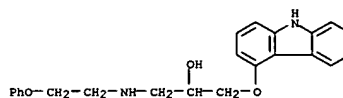
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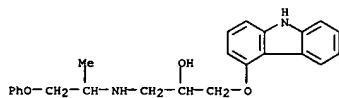


RN 72956-10-6 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-phenoxyethyl)amino]- (9CI) (CA INDEX NAME)

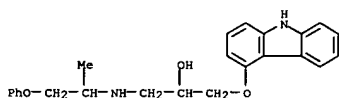


RN 72956-11-7 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(1-methyl-2-phenoxyethyl)amino]-  
 (9CI) (CA INDEX NAME)

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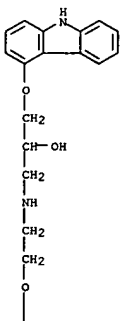
RN 72956-12-8 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(1-methyl-2-phenoxyethyl)amino]-,  
 monohydrochloride (9CI) (CA INDEX NAME)



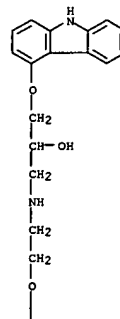
● HCl

RN 72956-14-0 CAPLUS  
 CN Benzamide, 4-[2-[(3-(9H-carbazol-4-yloxy)-2-hydroxypropyl)amino]ethoxy]-  
 (9CI) (CA INDEX NAME)

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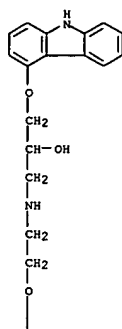


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RN 72956-16-2 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[(2-(4-fluorophenoxy)ethyl)amino]-

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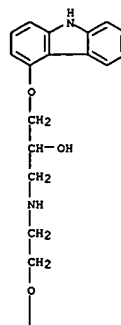


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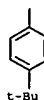


RN 72956-17-3 CAPLUS  
CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(4-(1,1-dimethylethyl)phenoxy)ethyl)amino)- (9CI) (CA INDEX NAME)

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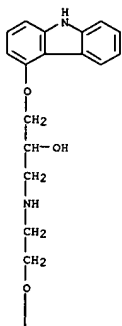


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RN 72956-18-4 CAPLUS  
CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(2,3-dimethylphenoxy)ethyl)amino)- (9CI) (CA INDEX NAME)

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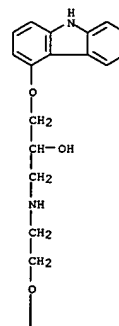


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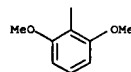


RN 72956-22-0 CAPLUS  
CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(2,6-dimethoxyphenoxy)ethyl)amino)- (9CI) (CA INDEX NAME)

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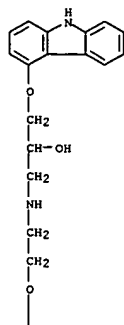


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RN 72956-23-1 CAPLUS  
CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(2-methylphenoxy)ethyl)amino)- (9CI) (CA INDEX NAME)

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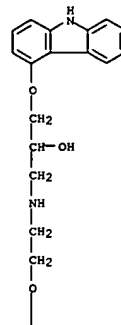


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RN 72956-24-2 CAPLUS  
 CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(3-methylphenoxy)ethyl)amino))-  
 (9CI) (CA INDEX NAME)

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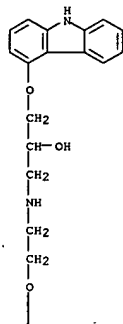


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RN 72956-25-3 CAPLUS  
 CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(2-chlorophenoxy)ethyl)amino))-  
 (9CI) (CA INDEX NAME)

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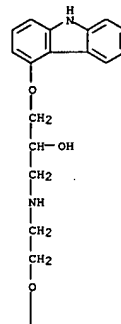


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RN 72956-26-4 CAPLUS  
 CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(3-methoxyphenoxy)ethyl)amino))-  
 (9CI) (CA INDEX NAME)

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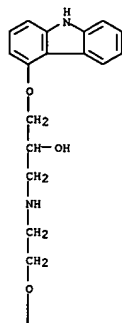
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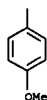
RN 72956-27-5 CAPLUS  
 CN 2-Propanol, 1-((9H-carbazol-4-yloxy)-3-((2-(4-methoxyphenoxy)ethyl)amino))-  
 (9CI) (CA INDEX NAME)



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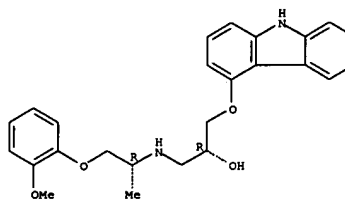


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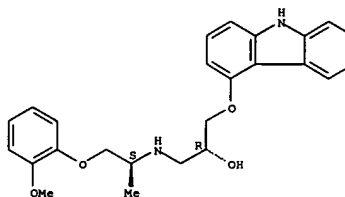
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 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)-1-methylethyl]amino]-, (R\*,R\*)- (9CI) (CA INDEX NAME)

Relative stereochemistry.



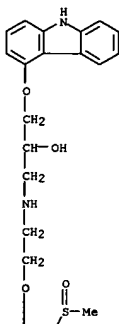
RN 72956-30-0 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)-1-methylethyl]amino]-, (R\*,S\*)- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 72956-31-1 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methylsulfinylphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

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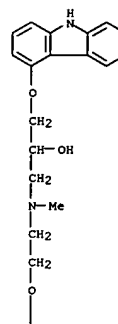


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RN 72956-35-5 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]methylamino]- (9CI) (CA INDEX NAME)

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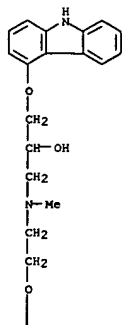


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RN 72956-36-6 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]methylamino]-, monohydrochloride (9CI) (CA INDEX NAME)

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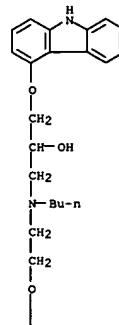
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● HCl

RN 72956-37-7 CAPLUS  
 CN 2-Propanol, 1-[(butyl[2-(2-methoxyphenoxy)ethyl]amino)-3-(9H-carbazol-4-yloxy)- (9CI) (CA INDEX NAME)

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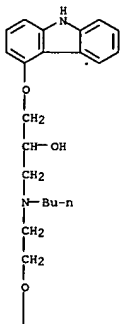


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RN 72956-38-8 CAPLUS  
 CN 2-Propanol, 1-[(butyl[2-(2-methoxyphenoxy)ethyl]amino)-3-(9H-carbazol-4-yloxy)-, monohydrochloride (9CI) (CA INDEX NAME)

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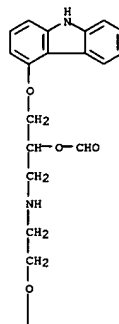
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● HCl

RN 72956-40-2 CAPLUS  
 CN 2-Propanol, 1-[(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-, formate (ester), monohydrochloride (9CI) (CA INDEX NAME)

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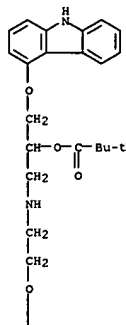
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● HCl

RN 72956-41-3 CAPLUS  
 CN Propanoic acid, 2,2-dimethyl-, 2-(9H-carbazol-4-yloxy)-1-[[[2-(2-methoxyphenoxy)ethyl]amino]methyl]ethyl ester, monohydrochloride (9CI) (CA INDEX NAME)

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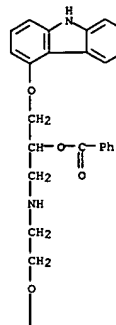
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● HCl

RN 72956-42-4 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]-,  
 benzoate (ester), monohydrochloride (9CI) (CA INDEX NAME)

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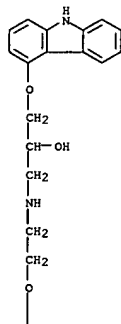
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● HCl

RN 72956-44-6 CAPLUS  
 CN Phenol, 2-[2-[[3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]ethoxy]-  
 (9CI) (CA INDEX NAME)

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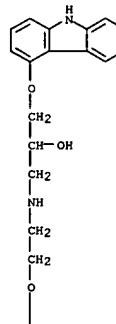


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RN 72956-45-7 CAPLUS  
 CN Phenol, 2-[2-[[3-(9H-carbazol-4-yloxy)-2-hydroxypropyl]amino]ethoxy]-,  
 monohydrochloride (9CI) (CA INDEX NAME)

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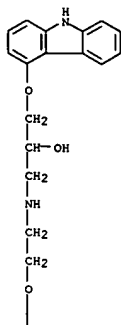
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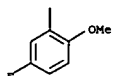
● HCl

RN 72956-46-8 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(5-fluoro-2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

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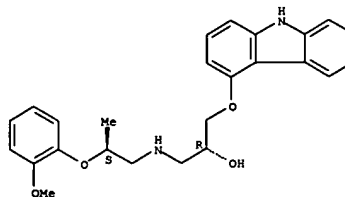


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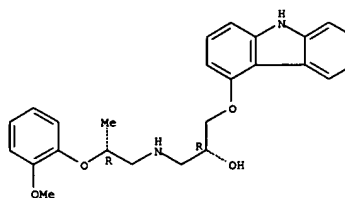
RN 72957-31-4 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)propyl]amino]-  
 , (R\*,R\*)- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 72957-32-5 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)propyl]amino]-  
 , (R\*,R\*)- (9CI) (CA INDEX NAME)

Relative stereochemistry.

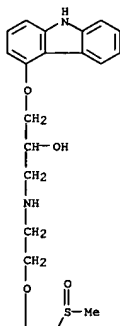


RN 73050-15-4 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-(methylsulfinyl)phenoxy)ethyl  
 ]amino]-, ethanedioate (salt) (9CI) (CA INDEX NAME)

CM 1

CRN 72956-31-1  
 CMF C24 H26 N2 O4 S

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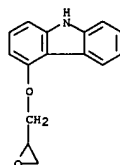


CM 2

CRN 144-62-7  
 CMF C2 H2 O4



IT 51997-51-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with amines)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



=> fil reg

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
104.96	447.01

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

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ENTRY	SESSION
-15.00	-15.00

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STRUCTURE FILE UPDATES: 20 SEP 2006 HIGHEST RN 908067-83-4

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Match level :

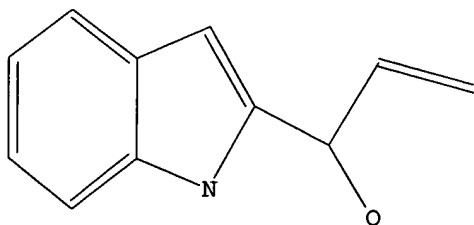
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11:CLASS 12:CLASS 13:CLASS

L13 STRUCTURE UPLOADED

=> d

L13 HAS NO ANSWERS

L13 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 114

1.14 NOT FOUND

FULL ESTIMATED COST	ENTRY 168.26	SESSION 615.27
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FILE COVERS 1907 - 21 Sep 2006 VOL 145 ISS 13  
 FILE LAST UPDATED: 20 Sep 2006 (20060920/ED)

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L10 1346 S L9 FULL

FILE 'CAPLUS' ENTERED AT 08:14:01 ON 21 SEP 2006

L11 1346 S L10

L12 20 S L11 AND L5

FILE 'REGISTRY' ENTERED AT 08:17:32 ON 21 SEP 2006

L13 STRUCTURE UPLOADED

L14 1 S L13

L15 20 S L13 FULL

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L16 15 S L15

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L17 1 L12 AND L16

=> d ibib abs hitstr



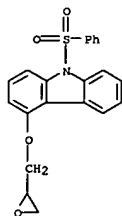
L17 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:556143 CAPLUS  
 DOCUMENT NUMBER: 137:125080  
 TITLE: Process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temperatures and catalyst loading  
 INVENTOR(S): Scalone, Michelangelo; Zeibig, Thomas Albert  
 PATENT ASSIGNEE(S): Hoffmann-LaRoche Inc., Switz.  
 SOURCE: U.S. Pat. Appl. Publ., 19 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002099223	A1	20020725	US 2002-54462	20020122
US 6777559	B2	20040817		
CA 2434408	AA	20020801	CA 2002-2434408	20020122
WO 2002059089	A2	20020801	WO 2002-EP583	20020122
WO 2002059089	A3	20021031		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SH, TD, TG  
 EP 1355880 A2 20031029 EP 2002-716673 20020122  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
 JP 2004519465 T2 20040702 JP 2002-559391 20020122  
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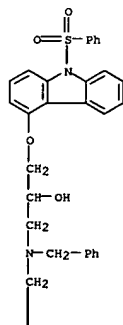
OTHER SOURCE(S): CASREACT 137:125080; MARPAT 137:125080  
 AB A process for the preparation heterocyclic indene analogs, especially with the preparation of 4-hydroxycarbazole or N-protected 4-hydroxycarbazole, involves cyclocarbonylation followed by saponification. This process avoids high temps. and high catalyst loadings.  
 IT 72955-94-3P 444105-35-5P 444105-40-2P  
 444105-41-3P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (intermediate: process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)  
 RN 72955-94-3 CAPLUS  
 CN 2-Propanol,  
 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]-9-ethylamino]- (9CI) (CA INDEX NAME)

L17 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



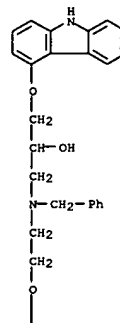
RN 444105-41-3 CAPLUS  
 CN 9H-Carbazole,  
 4-[2-hydroxy-3-[[2-(2-methoxyphenoxy)ethyl](phenylmethyl)amino]propoxy]-9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)

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L17 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

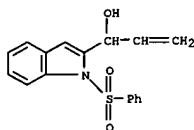
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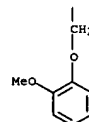
RN 444105-35-5 CAPLUS  
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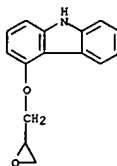
RN 444105-40-2 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)-9-(phenylsulfonyl)- (9CI) (CA INDEX NAME)

L17 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

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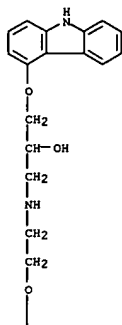


IT 51997-51-4P, 4-Oxiranylmethoxy-9H-carbazole 72956-09-3P, Carvedilol  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (process for preparing heterocyclic indene analogs by cyclocarbonylation at moderate temps. and catalyst loading)  
 RN 51997-51-4 CAPLUS  
 CN 9H-Carbazole, 4-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



RN 72956-09-3 CAPLUS  
 CN 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-[[2-(2-methoxyphenoxy)ethyl]amino]- (9CI) (CA INDEX NAME)

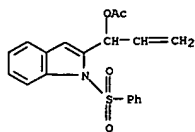
PAGE 1-A



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IT 444105-36-6P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);  
 RACT  
 (Reactant or reagent)  
 (process for preparing heterocyclic indene analogs by  
 cyclocarbonylation  
 at moderate temps. and catalyst loading)  
 RN 444105-36-6 CAPLUS  
 CN 1H-Indole-2-methanol,  $\alpha$ -ethenyl-1-(phenylsulfonyl)-, acetate (ester)  
 (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

=> log y

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

6.03

621.30

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

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-0.75

-15.75

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